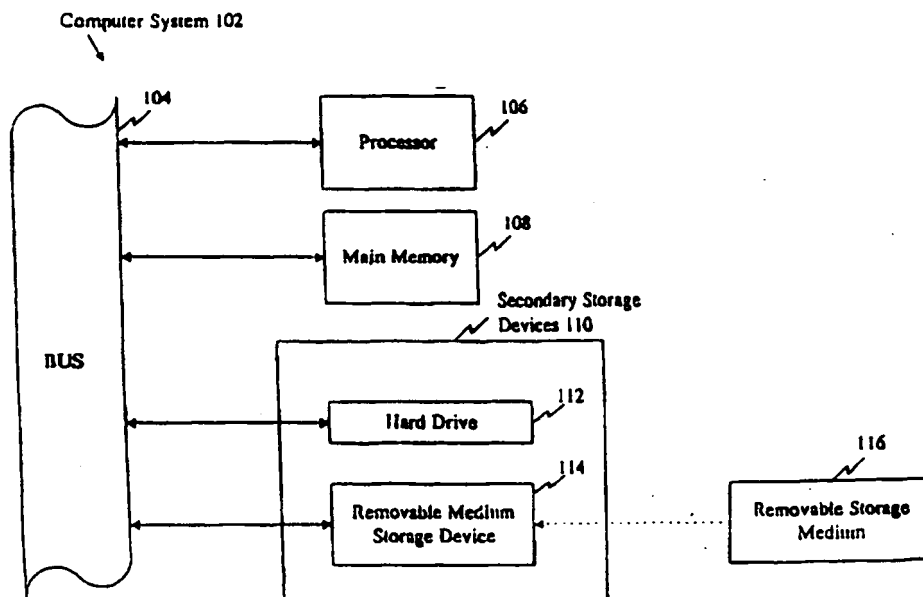




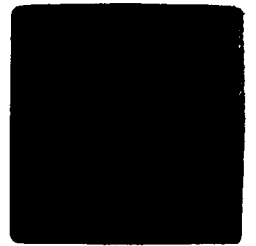
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(71) Applicant (for all designated States except US): HUMAN GENOME SCIENCES, INC. [US/US]; 9410 Key West Avenue, Rockville, MD 20850 (US).			
(72) Inventors; and			
(75) Inventors/Applicants (for US only): KUNSCH, Charles, A. [US/US]; 2398B Dunwoody Crossing, Atlanta, GA 30338 (US). CHOI, Gil, H. [KR/US]; 11429 Potomac Oaks Drive, Rockville, MD 20850 (US). DILLON, Patrick, J. [US/US]; 1055 Snipe Court, Carlsbad, CA 92009 (US). ROSEN, Craig, A. [US/US]; 22400 Rolling Hill Road, Laytonsville, MD 20882 (US). BARASH, Steven, C. [US/US]; 582 College Parkway #303, Rockville, MD 20850 (US). FANNON, Michael [US/US]; 13501 Rippling Brook Drive, Silver Spring, MD 20850 (US). DOUGHERTY, Brian, A. [US/US]; 708 Meadow Field Court, Mount Airy, MD 21771 (US).		Published Without international search report and to be republished upon receipt of that report.	

(54) Title: *STREPTOCOCCUS PNEUMONIAE* POLYNUCLEOTIDES AND SEQUENCES

## (57) Abstract

The present invention provides polynucleotide sequences of the genome of *Streptococcus pneumoniae*, polypeptide sequences encoded by the polynucleotide sequences, corresponding polynucleotides and polypeptides, vectors and hosts comprising the polynucleotides, and assays and other uses thereof. The present invention further provides polynucleotide and polypeptide sequence information stored on computer readable media, and computer-based systems and methods which facilitate its use.





## *Streptococcus pneumoniae* Polynucleotides and Sequences

### FIELD OF THE INVENTION

5       The present invention relates to the field of molecular biology. In particular, it relates to, among other things, nucleotide sequences of *Streptococcus pneumoniae*, contigs, ORFs, fragments, probes, primers and related polynucleotides thereof, peptides and polypeptides encoded by the sequences, and uses of the polynucleotides and sequences thereof, such as in fermentation,  
10   polypeptide production, assays and pharmaceutical development, among others.

### BACKGROUND OF THE INVENTION

*Streptococcus pneumoniae* has been one of the most extensively studied  
15   microorganisms since its first isolation in 1881. It was the object of many investigations that led to important scientific discoveries. In 1928, Griffith observed that when heat-killed encapsulated pneumococci and live strains constitutively lacking any capsule were concomitantly injected into mice, the nonencapsulated could be converted into encapsulated pneumococci with the same  
20   capsular type as the heat-killed strain. Years later, the nature of this "transforming principle," or carrier of genetic information, was shown to be DNA. (Avery, O.T., et al., *J. Exp. Med.*, 79:137-157 (1944)).

      In spite of the vast number of publications on *S. pneumoniae* many questions about its virulence are still unanswered, and this pathogen remains a  
25   major causative agent of serious human disease, especially community-acquired pneumonia. (Johnston, R.B., et al., *Rev. Infect. Dis.* 13(Suppl. 6):S509-517 (1991)). In addition, in developing countries, the pneumococcus is responsible for the death of a large number of children under the age of 5 years from pneumococcal pneumonia. The incidence of pneumococcal disease is highest in infants under 2  
30   years of age and in people over 60 years of age. Pneumococci are the second most frequent cause (after *Haemophilus influenzae* type b) of bacterial meningitis and otitis media in children. With the recent introduction of conjugate vaccines for *H. influenzae* type b, pneumococcal meningitis is likely to become increasingly prominent. *S. pneumoniae* is the most important etiologic agent of community-

acquired pneumonia in adults and is the second most common cause of bacterial meningitis behind *Neisseria meningitidis*.

The antibiotic generally prescribed to treat *S. pneumoniae* is benzylpenicillin, although resistance to this and to other antibiotics is found occasionally. Pneumococcal resistance to penicillin results from mutations in its penicillin-binding proteins. In uncomplicated pneumococcal pneumonia caused by a sensitive strain, treatment with penicillin is usually successful unless started too late. Erythromycin or clindamycin can be used to treat pneumonia in patients hypersensitive to penicillin, but resistant strains to these drugs exist. Broad spectrum antibiotics (e.g., the tetracyclines) may also be effective, although tetracycline-resistant strains are not rare. In spite of the availability of antibiotics, the mortality of pneumococcal bacteremia in the last four decades has remained stable between 25 and 29%. (Gillespie, S.H., et al., *J. Med. Microbiol.* 28:237-248 (1989).

*S. pneumoniae* is carried in the upper respiratory tract by many healthy individuals. It has been suggested that attachment of pneumococci is mediated by a disaccharide receptor on fibronectin, present on human pharyngeal epithelial cells. (Anderson, B.J., et al., *J. Immunol.* 142:2464-2468 (1989). The mechanisms by which pneumococci translocate from the nasopharynx to the lung, thereby causing pneumonia, or migrate to the blood, giving rise to bacteremia or septicemia, are poorly understood. (Johnston, R.B., et al., *Rev. Infect. Dis.* 13(Suppl. 6):S509-517 (1991).

Various proteins have been suggested to be involved in the pathogenicity of *S. pneumoniae*, however, only a few of them have actually been confirmed as virulence factors. Pneumococci produce an IgA1 protease that might interfere with host defense at mucosal surfaces. (Kornfield, S.J., et al., *Rev. Inf. Dis.* 3:521-534 (1981). *S. pneumoniae* also produces neuraminidase, an enzyme that may facilitate attachment to epithelial cells by cleaving sialic acid from the host glycolipids and gangliosides. Partially purified neuraminidase was observed to induce meningitis-like symptoms in mice; however, the reliability of this finding has been questioned because the neuraminidase preparations used were probably contaminated with cell wall products. Other pneumococcal proteins besides neuraminidase are involved in the adhesion of pneumococci to epithelial and endothelial cells. These pneumococcal proteins have as yet not been identified. Recently, Cundell et al., reported that peptide permeases can modulate

pneumococcal adherence to epithelial and endothelial cells. It was, however, unclear whether these permeases function directly as adhesions or whether they enhance adherence by modulating the expression of pneumococcal adhesions. (DeVelasco, E.A., *et al.*, *Micro. Rev.* 59:591-603 (1995). A better understanding of the virulence factors determining its pathogenicity will need to be developed to cope with the devastating effects of pneumococcal disease in humans.

Ironically, despite the prominent role of *S. pneumoniae* in the discovery of DNA, little is known about the molecular genetics of the organism. The *S. pneumoniae* genome consists of one circular, covalently closed, double-stranded DNA and a collection of so-called variable accessory elements, such as prophages, plasmids, transposons and the like. Most physical characteristics and almost all of the genes of *S. pneumoniae* are unknown. Among the few that have been identified, most have not been physically mapped or characterized in detail. Only a few genes of this organism have been sequenced. (See, for instance current versions of GENBANK and other nucleic acid databases, and references that relate to the genome of *S. pneumoniae* such as those set out elsewhere herein.)

It is clear that the etiology of diseases mediated or exacerbated by *S. pneumoniae*, infection involves the programmed expression of *S. pneumoniae* genes, and that characterizing the genes and their patterns of expression would add dramatically to our understanding of the organism and its host interactions. Knowledge of *S. pneumoniae* genes and genomic organization would improve our understanding of disease etiology and lead to improved and new ways of preventing, ameliorating, arresting and reversing diseases. Moreover, characterized genes and genomic fragments of *S. pneumoniae* would provide reagents for, among other things, detecting, characterizing and controlling *S. pneumoniae* infections. There is a need to characterize the genome of *S. pneumoniae* and for polynucleotides of this organism.

## SUMMARY OF THE INVENTION

5 The present invention is based on the sequencing of fragments of the *Streptococcus pneumoniae* genome. The primary nucleotide sequences which were generated are provided in SEQ ID NOS:1-391.

10 The present invention provides the nucleotide sequence of several hundred contigs of the *Streptococcus pneumoniae* genome, which are listed in tables below and set out in the Sequence Listing submitted herewith, and representative fragments thereof, in a form which can be readily used, analyzed, and interpreted by a skilled artisan. In one embodiment, the present invention is provided as contiguous strings of primary sequence information corresponding to the nucleotide sequences depicted in SEQ ID NOS:1-391.

15 The present invention further provides nucleotide sequences which are at least 95% identical to the nucleotide sequences of SEQ ID NOS:1-391.

20 The nucleotide sequence of SEQ ID NOS:1-391, a representative fragment thereof, or a nucleotide sequence which is at least 95% identical to the nucleotide sequence of SEQ ID NOS:1-391 may be provided in a variety of mediums to facilitate its use. In one application of this embodiment, the sequences of the present invention are recorded on computer readable media. Such media includes, but is not limited to: magnetic storage media, such as floppy discs, hard disc storage medium, and magnetic tape; optical storage media such as CD-ROM; electrical storage media such as RAM and ROM; and hybrids of these categories such as magnetic/optical storage media.

25 The present invention further provides systems, particularly computer-based systems which contain the sequence information herein described stored in a data storage means. Such systems are designed to identify commercially important fragments of the *Streptococcus pneumoniae* genome.

30 Another embodiment of the present invention is directed to fragments of the *Streptococcus pneumoniae* genome having particular structural or functional attributes. Such fragments of the *Streptococcus pneumoniae* genome of the present invention include, but are not limited to, fragments which encode peptides, hereinafter referred to as open reading frames or ORFs, fragments which modulate the expression of an operably linked ORF, hereinafter referred to as expression modulating fragments or EMFs, and fragments which can be used to diagnose the

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presence of *Streptococcus pneumoniae* in a sample, hereinafter referred to as diagnostic fragments or DFs.

Each of the ORFs in fragments of the *Streptococcus pneumoniae* genome disclosed in Tables 1-3, and the EMFs found 5' to the ORFs, can be used in numerous ways as polynucleotide reagents. For instance, the sequences can be used as diagnostic probes or amplification primers for detecting or determining the presence of a specific microbe in a sample, to selectively control gene expression in a host and in the production of polypeptides, such as polypeptides encoded by ORFs of the present invention, particular those polypeptides that have a pharmacological activity.

The present invention further includes recombinant constructs comprising one or more fragments of the *Streptococcus pneumoniae* genome of the present invention. The recombinant constructs of the present invention comprise vectors, such as a plasmid or viral vector, into which a fragment of the *Streptococcus pneumoniae* has been inserted.

The present invention further provides host cells containing any of the isolated fragments of the *Streptococcus pneumoniae* genome of the present invention. The host cells can be a higher eukaryotic host cell, such as a mammalian cell, a lower eukaryotic cell, such as a yeast cell, or a procaryotic cell such as a bacterial cell.

The present invention is further directed to isolated polypeptides and proteins encoded by ORFs of the present invention. A variety of methods, well known to those of skill in the art, routinely may be utilized to obtain any of the polypeptides and proteins of the present invention. For instance, polypeptides and proteins of the present invention having relatively short, simple amino acid sequences readily can be synthesized using commercially available automated peptide synthesizers. Polypeptides and proteins of the present invention also may be purified from bacterial cells which naturally produce the protein. Yet another alternative is to purify polypeptide and proteins of the present invention from cells which have been altered to express them.

The invention further provides methods of obtaining homologs of the fragments of the *Streptococcus pneumoniae* genome of the present invention and homologs of the proteins encoded by the ORFs of the present invention. Specifically, by using the nucleotide and amino acid sequences disclosed herein as

a probe or as primers, and techniques such as PCR cloning and colony/plaque hybridization, one skilled in the art can obtain homologs.

The invention further provides antibodies which selectively bind polypeptides and proteins of the present invention. Such antibodies include both  
5 monoclonal and polyclonal antibodies.

The invention further provides hybridomas which produce the above-described antibodies. A hybridoma is an immortalized cell line which is capable of secreting a specific monoclonal antibody.

The present invention further provides methods of identifying test samples  
10 derived from cells which express one of the ORFs of the present invention, or a homolog thereof. Such methods comprise incubating a test sample with one or more of the antibodies of the present invention, or one or more of the DFs of the present invention, under conditions which allow a skilled artisan to determine if the sample contains the ORF or product produced therefrom.

15 In another embodiment of the present invention, kits are provided which contain the necessary reagents to carry out the above-described assays.

Specifically, the invention provides a compartmentalized kit to receive, in close confinement, one or more containers which comprises: (a) a first container comprising one of the antibodies, or one of the DFs of the present invention; and  
20 (b) one or more other containers comprising one or more of the following: wash reagents, reagents capable of detecting presence of bound antibodies or hybridized DFs.

Using the isolated proteins of the present invention, the present invention further provides methods of obtaining and identifying agents capable of binding to  
25 a polypeptide or protein encoded by one of the ORFs of the present invention. Specifically, such agents include, as further described below, antibodies, peptides, carbohydrates, pharmaceutical agents and the like. Such methods comprise steps of: (a) contacting an agent with an isolated protein encoded by one of the ORFs of the present invention; and (b) determining whether the agent binds to said protein.

30 The present genomic sequences of *Streptococcus pneumoniae* will be of great value to all laboratories working with this organism and for a variety of commercial purposes. Many fragments of the *Streptococcus pneumoniae* genome will be immediately identified by similarity searches against GenBank or protein databases and will be of immediate value to *Streptococcus pneumoniae* researchers

and for immediate commercial value for the production of proteins or to control gene expression.

The methodology and technology for elucidating extensive genomic sequences of bacterial and other genomes has and will greatly enhance the ability to analyze and understand chromosomal organization. In particular, sequenced contigs and genomes will provide the models for developing tools for the analysis of chromosome structure and function, including the ability to identify genes within large segments of genomic DNA, the structure, position, and spacing of regulatory elements, the identification of genes with potential industrial applications, and the ability to do comparative genomic and molecular phylogeny.

### **DESCRIPTION OF THE FIGURES**

**FIGURE 1** is a block diagram of a computer system (102) that can be used to implement computer-based systems of present invention.

**FIGURE 2** is a schematic diagram depicting the data flow and computer programs used to collect, assemble, edit and annotate the contigs of the *Streptococcus pneumoniae* genome of the present invention. Both Macintosh and Unix platforms are used to handle the AB 373 and 377 sequence data files, largely as described in Kerlavage *et al.*, *Proceedings of the Twenty-Sixth Annual Hawaii International Conference on System Sciences*, 585, IEEE Computer Society Press, Washington D.C. (1993). Factura (AB) is a Macintosh program designed for automatic vector sequence removal and end-trimming of sequence files. The program Loadis runs on a Macintosh platform and parses the feature data extracted from the sequence files by Factura to the Unix based *Streptococcus pneumoniae* relational database. Assembly of contigs (and whole genome sequences) is accomplished by retrieving a specific set of sequence files and their associated features using Extrseq, a Unix utility for retrieving sequences from an SQL database. The resulting sequence file is processed by seq\_filter to trim portions of the sequences with more than 2% ambiguous nucleotides. The sequence files were assembled using TIGR Assembler, an assembly engine designed at The Institute for Genomic Research ( TIGR ) for rapid and accurate assembly of thousands of sequence fragments. The collection of contigs generated by the assembly step is loaded into the database with the lassie program. Identification of open reading

frames (ORFs) is accomplished by processing contigs with zorf or GenMark. The ORFs are searched against *S. pneumoniae* sequences from GenBank and against all protein sequences using the BLASTN and BLASTP programs, described in Altschul *et al.*, *J. Mol. Biol.* 215: 403-410 (1990)). Results of the ORF determination and similarity searching steps were loaded into the database. As described below, some results of the determination and the searches are set out in Tables 1-3.

### DETAILED DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

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The present invention is based on the sequencing of fragments of the *Streptococcus pneumoniae* genome and analysis of the sequences. The primary nucleotide sequences generated by sequencing the fragments are provided in SEQ ID NOS:1-391. (As used herein, the "primary sequence" refers to the nucleotide sequence represented by the IUPAC nomenclature system.)

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In addition to the aforementioned *Streptococcus pneumoniae* polynucleotide and polynucleotide sequences, the present invention provides the nucleotide sequences of SEQ ID NOS:1-391, or representative fragments thereof, in a form which can be readily used, analyzed, and interpreted by a skilled artisan.

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As used herein, a "representative fragment of the nucleotide sequence depicted in SEQ ID NOS:1-391" refers to any portion of the SEQ ID NOS:1-391 which is not presently represented within a publicly available database. Preferred representative fragments of the present invention are *Streptococcus pneumoniae* open reading frames ( ORFs ), expression modulating fragment ( EMFs ) and fragments which can be used to diagnose the presence of *Streptococcus pneumoniae* in sample ( DFs ). A non-limiting identification of preferred representative fragments is provided in Tables 1-3. As discussed in detail below, the information provided in SEQ ID NOS:1-391 and in Tables 1-3 together with routine cloning, synthesis, sequencing and assay methods will enable those skilled in the art to clone and sequence all "representative fragments" of interest, including open reading frames encoding a large variety of *Streptococcus pneumoniae* proteins.

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While the presently disclosed sequences of SEQ ID NOS:1-391 are highly accurate, sequencing techniques are not perfect and, in relatively rare instances, further investigation of a fragment or sequence of the invention may reveal a

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nucleotide sequence error present in a nucleotide sequence disclosed in SEQ ID NOS:1-391. However, once the present invention is made available (*i.e.*, once the information in SEQ ID NOS:1-391 and Tables 1-3 has been made available), resolving a rare sequencing error in SEQ ID NOS:1-391 will be well within the skill of the art. The present disclosure makes available sufficient sequence information to allow any of the described contigs or portions thereof to be obtained readily by straightforward application of routine techniques. Further sequencing of such polynucleotide may proceed in like manner using manual and automated sequencing methods which are employed ubiquitous in the art. Nucleotide sequence editing software is publicly available. For example, Applied Biosystem's (AB) AutoAssembler can be used as an aid during visual inspection of nucleotide sequences. By employing such routine techniques potential errors readily may be identified and the correct sequence then may be ascertained by targeting further sequencing effort, also of a routine nature, to the region containing the potential error.

Even if all of the very rare sequencing errors in SEQ ID NOS:1-391 were corrected, the resulting nucleotide sequences would still be at least 95% identical, nearly all would be at least 99% identical, and the great majority would be at least 99.9% identical to the nucleotide sequences of SEQ ID NOS:1-391.

As discussed elsewhere herein, polynucleotides of the present invention readily may be obtained by routine application of well known and standard procedures for cloning and sequencing DNA. Detailed methods for obtaining libraries and for sequencing are provided below, for instance. A wide variety of *Streptococcus pneumoniae* strains that can be used to prepare *S. pneumoniae* genomic DNA for cloning and for obtaining polynucleotides of the present invention are available to the public from recognized depository institutions, such as the American Type Culture Collection (ATCC). While the present invention is enabled by the sequences and other information herein disclosed, the *S. pneumoniae* strain that provided the DNA of the present Sequence Listing, Strain 7/87 14.8.91, has been deposited in the ATCC, as a convenience to those of skill in the art. As a further convenience, a library of *S. pneumoniae* genomic DNA, derived from the same strain, also has been deposited in the ATCC. The *S. pneumoniae* strain was deposited on October 10, 1996, and was given Deposit No. 55840, and the cDNA library was deposited on October 11, 1996 and was given Deposit No. 97755. The genomic fragments in the library are 15 to 20 kb

fragments generated by partial Sau3A1 digestion and they are inserted into the BamHI site in the well-known lambda-derived vector lambda DASH II (Stratagene, La Jolla, CA). The provision of the deposits is not a waiver of any rights of the inventors or their assignees in the present subject matter.

5       The nucleotide sequences of the genomes from different strains of *Streptococcus pneumoniae* differ somewhat. However, the nucleotide sequences of the genomes of all *Streptococcus pneumoniae* strains will be at least 95% identical, in corresponding part, to the nucleotide sequences provided in SEQ ID NOS:1-391. Nearly all will be at least 99% identical and the great majority will be  
10   99.9% identical.

Thus, the present invention further provides nucleotide sequences which are at least 95%, preferably 99% and most preferably 99.9% identical to the nucleotide sequences of SEQ ID NOS:1-391, in a form which can be readily used, analyzed and interpreted by the skilled artisan.

15       Methods for determining whether a nucleotide sequence is at least 95%, at least 99% or at least 99.9% identical to the nucleotide sequences of SEQ ID NOS:1-391 are routine and readily available to the skilled artisan. For example, the well known fasta algorithm described in Pearson and Lipman, *Proc. Natl. Acad. Sci. USA* 85: 2444 (1988) can be used to generate the percent identity of nucleotide  
20   sequences. The BLASTN program also can be used to generate an identity score of polynucleotides compared to one another.

### COMPUTER RELATED EMBODIMENTS

The nucleotide sequences provided in SEQ ID NOS:1-391, a representative  
25   fragment thereof, or a nucleotide sequence at least 95%, preferably at least 99% and most preferably at least 99.9% identical to a polynucleotide sequence of SEQ ID NOS:1-391 may be "provided" in a variety of mediums to facilitate use thereof. As used herein, provided refers to a manufacture, other than an isolated nucleic acid molecule, which contains a nucleotide sequence of the present invention; i.e.,  
30   a nucleotide sequence provided in SEQ ID NOS:1-391, a representative fragment thereof, or a nucleotide sequence at least 95%, preferably at least 99% and most preferably at least 99.9% identical to a polynucleotide of SEQ ID NOS:1-391. Such a manufacture provides a large portion of the *Streptococcus pneumoniae* genome and parts thereof (e.g., a *Streptococcus pneumoniae* open reading frame  
35   (ORF)) in a form which allows a skilled artisan to examine the manufacture using

means not directly applicable to examining the *Streptococcus pneumoniae* genome or a subset thereof as it exists in nature or in purified form.

In one application of this embodiment, a nucleotide sequence of the present invention can be recorded on computer readable media. As used herein, "computer readable media" refers to any medium which can be read and accessed directly by a computer. Such media include, but are not limited to: magnetic storage media, such as floppy discs, hard disc storage medium, and magnetic tape; optical storage media such as CD-ROM; electrical storage media such as RAM and ROM; and hybrids of these categories, such as magnetic/optical storage media. A skilled artisan can readily appreciate how any of the presently known computer readable mediums can be used to create a manufacture comprising computer readable medium having recorded thereon a nucleotide sequence of the present invention. Likewise, it will be clear to those of skill how additional computer readable media that may be developed also can be used to create analogous manufactures having recorded thereon a nucleotide sequence of the present invention.

As used herein, "recorded" refers to a process for storing information on computer readable medium. A skilled artisan can readily adopt any of the presently known methods for recording information on computer readable medium to generate manufactures comprising the nucleotide sequence information of the present invention. A variety of data storage structures are available to a skilled artisan for creating a computer readable medium having recorded thereon a nucleotide sequence of the present invention. The choice of the data storage structure will generally be based on the means chosen to access the stored information. In addition, a variety of data processor programs and formats can be used to store the nucleotide sequence information of the present invention on computer readable medium. The sequence information can be represented in a word processing text file, formatted in commercially-available software such as WordPerfect and MicroSoft Word, or represented in the form of an ASCII file, stored in a database application, such as DB2, Sybase, Oracle, or the like. A skilled artisan can readily adapt any number of data-processor structuring formats (e.g., text file or database) in order to obtain computer readable medium having recorded thereon the nucleotide sequence information of the present invention.

Computer software is publicly available which allows a skilled artisan to access sequence information provided in a computer readable medium. Thus, by providing in computer readable form the nucleotide sequences of SEQ ID NOS:1-

391, a representative fragment thereof, or a nucleotide sequence at least 95%, preferably at least 99% and most preferably at least 99.9% identical to a sequence of SEQ ID NOS:1-391 the present invention enables the skilled artisan routinely to access the provided sequence information for a wide variety of purposes.

5       The examples which follow demonstrate how software which implements the BLAST (Altschul *et al.*, *J. Mol. Biol.* 215:403-410 (1990)) and BLAZE (Brutlag *et al.*, *Comp. Chem.* 17:203-207 (1993)) search algorithms on a Sybase system was used to identify open reading frames (ORFs) within the *Streptococcus pneumoniae* genome which contain homology to ORFs or proteins from both  
10 *Streptococcus pneumoniae* and from other organisms. Among the ORFs discussed herein are protein encoding fragments of the *Streptococcus pneumoniae* genome useful in producing commercially important proteins, such as enzymes used in fermentation reactions and in the production of commercially useful metabolites.

15       The present invention further provides systems, particularly computer-based systems, which contain the sequence information described herein. Such systems are designed to identify, among other things, commercially important fragments of the *Streptococcus pneumoniae* genome.

20       As used herein, "a computer-based system" refers to the hardware means, software means, and data storage means used to analyze the nucleotide sequence information of the present invention. The minimum hardware means of the computer-based systems of the present invention comprises a central processing unit (CPU), input means, output means, and data storage means. A skilled artisan can readily appreciate that any one of the currently available computer-based systems are suitable for use in the present invention.

25       As stated above, the computer-based systems of the present invention comprise a data storage means having stored therein a nucleotide sequence of the present invention and the necessary hardware means and software means for supporting and implementing a search means.

30       As used herein, "data storage means" refers to memory which can store nucleotide sequence information of the present invention, or a memory access means which can access manufactures having recorded thereon the nucleotide sequence information of the present invention.

35       As used herein, "search means" refers to one or more programs which are implemented on the computer-based system to compare a target sequence or target structural motif with the sequence information stored within the data storage

means. Search means are used to identify fragments or regions of the present genomic sequences which match a particular target sequence or target motif. A variety of known algorithms are disclosed publicly and a variety of commercially available software for conducting search means are and can be used in the computer-based systems of the present invention. Examples of such software includes, but is not limited to, MacPattern (EMBL), BLASTN and BLASTX (NCBIA). A skilled artisan can readily recognize that any one of the available algorithms or implementing software packages for conducting homology searches can be adapted for use in the present computer-based systems.

As used herein, a "target sequence" can be any DNA or amino acid sequence of six or more nucleotides or two or more amino acids. A skilled artisan can readily recognize that the longer a target sequence is, the less likely a target sequence will be present as a random occurrence in the database. The most preferred sequence length of a target sequence is from about 10 to 100 amino acids or from about 30 to 300 nucleotide residues. However, it is well recognized that searches for commercially important fragments, such as sequence fragments involved in gene expression and protein processing, may be of shorter length.

As used herein, "a target structural motif," or "target motif," refers to any rationally selected sequence or combination of sequences in which the sequence(s) are chosen based on a three-dimensional configuration which is formed upon the folding of the target motif. There are a variety of target motifs known in the art. Protein target motifs include, but are not limited to, enzymic active sites and signal sequences. Nucleic acid target motifs include, but are not limited to, promoter sequences, hairpin structures and inducible expression elements (protein binding sequences).

A variety of structural formats for the input and output means can be used to input and output the information in the computer-based systems of the present invention. A preferred format for an output means ranks fragments of the *Streptococcus pneumoniae* genomic sequences possessing varying degrees of homology to the target sequence or target motif. Such presentation provides a skilled artisan with a ranking of sequences which contain various amounts of the target sequence or target motif and identifies the degree of homology contained in the identified fragment.

A variety of comparing means can be used to compare a target sequence or target motif with the data storage means to identify sequence fragments of the

*Streptococcus pneumoniae* genome. In the present examples, implementing software which implement the BLAST and BLAZE algorithms, described in Altschul *et al.*, *J. Mol. Biol.* 215: 403-410 (1990), is used to identify open reading frames within the *Streptococcus pneumoniae* genome. A skilled artisan can readily recognize that any one of the publicly available homology search programs can be used as the search means for the computer-based systems of the present invention. Of course, suitable proprietary systems that may be known to those of skill also may be employed in this regard.

Figure 1 provides a block diagram of a computer system illustrative of embodiments of this aspect of present invention. The computer system 102 includes a processor 106 connected to a bus 104. Also connected to the bus 104 are a main memory 108 (preferably implemented as random access memory, RAM) and a variety of secondary storage devices 110, such as a hard drive 112 and a removable medium storage device 114. The removable medium storage device 114 may represent, for example, a floppy disk drive, a CD-ROM drive, a magnetic tape drive, *etc.* A removable storage medium 116 (such as a floppy disk, a compact disk, a magnetic tape, *etc.*) containing control logic and/or data recorded therein may be inserted into the removable medium storage device 114. The computer system 102 includes appropriate software for reading the control logic and/or the data from the removable medium storage device 114, once it is inserted into the removable medium storage device 114.

A nucleotide sequence of the present invention may be stored in a well known manner in the main memory 108, any of the secondary storage devices 110, and/or a removable storage medium 116. During execution, software for accessing and processing the genomic sequence (such as search tools, comparing tools, *etc.*) reside in main memory 108, in accordance with the requirements and operating parameters of the operating system, the hardware system and the software program or programs.

## BIOCHEMICAL EMBODIMENTS

Other embodiments of the present invention are directed to isolated fragments of the *Streptococcus pneumoniae* genome. The fragments of the *Streptococcus pneumoniae* genome of the present invention include, but are not limited to fragments which encode peptides and polypeptides, hereinafter open reading frames (ORFs), fragments which modulate the expression of an operably linked ORF, hereinafter expression modulating fragments (EMFs) and fragments which can be used to diagnose the presence of *Streptococcus pneumoniae* in a sample, hereinafter diagnostic fragments (DFs).

As used herein, an "isolated nucleic acid molecule" or an "isolated fragment of the *Streptococcus pneumoniae* genome" refers to a nucleic acid molecule possessing a specific nucleotide sequence which has been subjected to purification means to reduce, from the composition, the number of compounds which are normally associated with the composition. Particularly, the term refers to the nucleic acid molecules having the sequences set out in SEQ ID NOS:1-391, to representative fragments thereof as described above, to polynucleotides at least 95%, preferably at least 99% and especially preferably at least 99.9% identical in sequence thereto, also as set out above.

A variety of purification means can be used to generate the isolated fragments of the present invention. These include, but are not limited to methods which separate constituents of a solution based on charge, solubility, or size.

In one embodiment, *Streptococcus pneumoniae* DNA can be enzymatically sheared to produce fragments of 15-20 kb in length. These fragments can then be used to generate a *Streptococcus pneumoniae* library by inserting them into lambda clones as described in the Examples below. Primers flanking, for example, an ORF, such as those enumerated in Tables 1-3 can then be generated using nucleotide sequence information provided in SEQ ID NOS:1-391. Well known and routine techniques of PCR cloning then can be used to isolate the ORF from the lambda DNA library or *Streptococcus pneumoniae* genomic DNA. Thus, given the availability of SEQ ID NOS:1-391, the information in Tables 1, 2 and 3, and the information that may be obtained readily by analysis of the sequences of SEQ ID NOS:1-391 using methods set out above, those of skill will be enabled by the present disclosure to isolate any ORF-containing or other nucleic acid fragment of the present invention.

The isolated nucleic acid molecules of the present invention include, but are not limited to single stranded and double stranded DNA, and single stranded RNA.

As used herein, an "open reading frame," ORF, means a series of triplets coding for amino acids without any termination codons and is a sequence  
5 translatable into protein.

Tables 1, 2, and 3 list ORFs in the *Streptococcus pneumoniae* genomic contigs of the present invention that were identified as putative coding regions by the GeneMark software using organism-specific second-order Markov probability transition matrices. It will be appreciated that other criteria can be used, in  
10 accordance with well known analytical methods, such as those discussed herein, to generate more inclusive, more restrictive, or more selective lists.

Table 1 sets out ORFs in the *Streptococcus pneumoniae* contigs of the present invention that over a continuous region of at least 50 bases are 95% or more identical (by BLAST analysis) to a nucleotide sequence available through  
15 GenBank in October, 1997.

Table 2 sets out ORFs in the *Streptococcus pneumoniae* contigs of the present invention that are not in Table 1 and match, with a BLASTP probability score of 0.01 or less, a polypeptide sequence available through GenBank in October, 1997.

20 Table 3 sets out ORFs in the *Streptococcus pneumoniae* contigs of the present invention that do not match significantly, by BLASTP analysis, a polypeptide sequence available through GenBank in October, 1997.

In each table, the first and second columns identify the ORF by, respectively, contig number and ORF number within the contig; the third column  
25 indicates the first nucleotide of the ORF (actually the first nucleotide of the stop codon immediately preceeding the ORF), counting from the 5' end of the contig strand; and the fourth column, "stop (nt)" indicates the last nucleotide of the stop codon defining the 3' end of the ORF.

In Tables 1 and 2, column five, lists the Reference for the closest  
30 matching sequence available through GenBank. These reference numbers are the databases entry numbers commonly used by those of skill in the art, who will be familiar with their denominators. Descriptions of the nomenclature are available from the National Center for Biotechnology Information. Column six in Tables 1 and 2 provides the gene name of the matching sequence; column seven provides  
35 the BLAST identity score and column eight the BLAST similarity score from the



comparison of the ORF and the homologous gene; and column nine indicates the length in nucleotides of the highest scoring segment pair identified by the BLAST identity analysis.

Each ORF described in the tables is defined by "start (nt)" (5') and "stop (nt)" (3') nucleotide position numbers. These position numbers refer to the boundaries of each ORF and provide orientation with respect to whether the forward or reverse strand is the coding strand and which reading frame the coding sequence is contained. The "start" position is the first nucleotide of the triplet encoding a stop codon just 5' to the ORF and the "stop" position is the last nucleotide of the triplet encoding the next in-frame stop codon (i.e., the stop codon at the 3' end of the ORF). Those of ordinary skill in the art appreciate that preferred fragments within each ORF described in the table include fragments of each ORF which include the entire sequence from the delineated "start" and "stop" positions excepting the first and last three nucleotides since these encode stop codons. Thus, polynucleotides set out as ORFs in the tables but lacking the three (3) 5' nucleotides and the three (3) 3' nucleotides are encompassed by the present invention. Those of skill also appreciate that particularly preferred are fragments within each ORF that are polynucleotide fragments comprising polypeptide coding sequence. As defined herein, "coding sequence" includes the fragment within an ORF beginning at the first in-frame ATG (triplet encoding methionine) and ending with the last nucleotide prior to the triplet encoding the 3' stop codon. Preferred are fragments comprising the entire coding sequence and fragments comprising the entire coding sequence, excepting the coding sequence for the N-terminal methionine. Those of skill appreciate that the N-terminal methionine is often removed during post-translational processing and that polynucleotides lacking the ATG can be used to facilitate production of N-terminal fusion proteins which may be beneficial in the production or use of genetically engineered proteins. Of course, due to the degeneracy of the genetic code many polynucleotides can encode a given polypeptide. Thus, the invention further includes polynucleotides comprising a nucleotide sequence encoding a polypeptide sequence itself encoded by the coding sequence within an ORF described in Tables 1-3 herein. Further, polynucleotides at least 95%, preferably at least 99% and especially preferably at least 99.9% identical in sequence to the foregoing polynucleotides, are contemplated by the present invention.

Polypeptides encoded by polynucleotides described above and elsewhere herein are also provided by the present invention as are polypeptide comprising an amino acid sequence at least about 95%, preferably at least 97% and even more preferably 99% identical to the amino acid sequence of a polypeptide encoded by an ORF shown in Tables 1-3. These polypeptides may or may not comprise an N-terminal methionine.

The concepts of percent identity and percent similarity of two polypeptide sequences is well understood in the art. For example, two polypeptides 10 amino acids in length which differ at three amino acid positions (*e.g.*, at positions 1, 3 and 5) are said to have a percent identity of 70%. However, the same two polypeptides would be deemed to have a percent similarity of 80% if, for example at position 5, the amino acids moieties, although not identical, were "similar" (*i.e.*, possessed similar biochemical characteristics). Many programs for analysis of nucleotide or amino acid sequence similarity, such as fasta and BLAST specifically list percent identity of a matching region as an output parameter. Thus, for instance, Tables 1 and 2 herein enumerate the percent identity of the highest scoring segment pair in each ORF and its listed relative. Further details concerning the algorithms and criteria used for homology searches are provided below and are described in the pertinent literature highlighted by the citations provided below.

It will be appreciated that other criteria can be used to generate more inclusive and more exclusive listings of the types set out in the tables. As those of skill will appreciate, narrow and broad searches both are useful. Thus, a skilled artisan can readily identify ORFs in contigs of the *Streptococcus pneumoniae* genome other than those listed in Tables 1-3, such as ORFs which are overlapping or encoded by the opposite strand of an identified ORF in addition to those ascertainable using the computer-based systems of the present invention.

As used herein, an "expression modulating fragment," EMF, means a series of nucleotide molecules which modulates the expression of an operably linked ORF or EMF.

As used herein, a sequence is said to "modulate the expression of an operably linked sequence" when the expression of the sequence is altered by the presence of the EMF. EMFs include, but are not limited to, promoters, and promoter modulating sequences (inducible elements). One class of EMFs are fragments which induce the expression of an operably linked ORF in response to a specific regulatory factor or physiological event.

EMF sequences can be identified within the contigs of the *Streptococcus pneumoniae* genome by their proximity to the ORFs provided in Tables 1-3. An intergenic segment, or a fragment of the intergenic segment, from about 10 to 200 nucleotides in length, taken from any one of the ORFs of Tables 1-3 will modulate the expression of an operably linked ORF in a fashion similar to that found with the naturally linked ORF sequence. As used herein, an "intergenic segment" refers to fragments of the *Streptococcus pneumoniae* genome which are between two ORF(s) herein described. EMFs also can be identified using known EMFs as a target sequence or target motif in the computer-based systems of the present invention. Further, the two methods can be combined and used together.

The presence and activity of an EMF can be confirmed using an EMF trap vector. An EMF trap vector contains a cloning site linked to a marker sequence. A marker sequence encodes an identifiable phenotype, such as antibiotic resistance or a complementing nutrition auxotrophic factor, which can be identified or assayed when the EMF trap vector is placed within an appropriate host under appropriate conditions. As described above, a EMF will modulate the expression of an operably linked marker sequence. A more detailed discussion of various marker sequences is provided below. A sequence which is suspected as being an EMF is cloned in all three reading frames in one or more restriction sites upstream from the marker sequence in the EMF trap vector. The vector is then transformed into an appropriate host using known procedures and the phenotype of the transformed host is examined under appropriate conditions. As described above, an EMF will modulate the expression of an operably linked marker sequence.

As used herein, a "diagnostic fragment," DF, means a series of nucleotide molecules which selectively hybridize to *Streptococcus pneumoniae* sequences. DFs can be readily identified by identifying unique sequences within contigs of the *Streptococcus pneumoniae* genome, such as by using well-known computer analysis software, and by generating and testing probes or amplification primers

consisting of the DF sequence in an appropriate diagnostic format which determines amplification or hybridization selectivity.

The sequences falling within the scope of the present invention are not limited to the specific sequences herein described, but also include allelic and species variations thereof. Allelic and species variations can be routinely determined by comparing the sequences provided in SEQ ID NOS:1-391, a representative fragment thereof, or a nucleotide sequence at least 95%, preferably at least 99% and most at least preferably 99.9% identical to SEQ ID NOS:1-391, with a sequence from another isolate of the same species. Furthermore, to accommodate codon variability, the invention includes nucleic acid molecules coding for the same amino acid sequences as do the specific ORFs disclosed herein. In other words, in the coding region of an ORF, substitution of one codon for another which encodes the same amino acid is expressly contemplated. Any specific sequence disclosed herein can be readily screened for errors by resequencing a particular fragment, such as an ORF, in both directions (*i.e.*, sequence both strands). Alternatively, error screening can be performed by sequencing corresponding polynucleotides of *Streptococcus pneumoniae* origin isolated by using part or all of the fragments in question as a probe or primer.

Preferred DFs of the present invention comprise at least about 17, preferably at least about 20, and more preferably at least about 50 contiguous nucleotides within an ORF set out in Tables 1-3. Most highly preferred DFs specifically hybridize to a polynucleotide containing the sequence of the ORF from which they are derived. Specific hybridization occurs even under stringent conditions defined elsewhere herein.

Each of the ORFs of the *Streptococcus pneumoniae* genome disclosed in Tables 1, 2 and 3, and the EMFs found 5' to the ORFs, can be used as polynucleotide reagents in numerous ways. For example, the sequences can be used as diagnostic probes or diagnostic amplification primers to detect the presence of a specific microbe in a sample, particularly *Streptococcus pneumoniae*. Especially preferred in this regard are ORFs such as those of Table 3, which do not match previously characterized sequences from other organisms and thus are most likely to be highly selective for *Streptococcus pneumoniae*. Also particularly preferred are ORFs that can be used to distinguish between strains of *Streptococcus pneumoniae*, particularly those that distinguish medically important strain, such as drug-resistant strains.

In addition, the fragments of the present invention, as broadly described, can be used to control gene expression through triple helix formation or antisense DNA or RNA, both of which methods are based on the binding of a polynucleotide sequence to DNA or RNA. Triple helix-formation optimally results in a shut-off of RNA transcription from DNA, while antisense RNA hybridization blocks translation of an mRNA molecule into polypeptide. Information from the sequences of the present invention can be used to design antisense and triple helix-forming oligonucleotides. Polynucleotides suitable for use in these methods are usually 20 to 40 bases in length and are designed to be complementary to a region of the gene involved in transcription, for triple-helix formation, or to the mRNA itself, for antisense inhibition. Both techniques have been demonstrated to be effective in model systems, and the requisite techniques are well known and involve routine procedures. Triple helix techniques are discussed in, for example, Lee *et al.*, *Nucl. Acids Res.* 6:3073 (1979); Cooney *et al.*, *Science* 241:456 (1988); and Dervan *et al.*, *Science* 251:1360 (1991). Antisense techniques in general are discussed in, for instance, Okano, *J. Neurochem.* 56:560 (1991) and *Oligodeoxynucleotides as Antisense Inhibitors of Gene Expression*, CRC Press, Boca Raton, FL (1988)).

The present invention further provides recombinant constructs comprising one or more fragments of the *Streptococcus pneumoniae* genomic fragments and contigs of the present invention. Certain preferred recombinant constructs of the present invention comprise a vector, such as a plasmid or viral vector, into which a fragment of the *Streptococcus pneumoniae* genome has been inserted, in a forward or reverse orientation. In the case of a vector comprising one of the ORFs of the present invention, the vector may further comprise regulatory sequences, including for example, a promoter, operably linked to the ORF. For vectors comprising the EMFs of the present invention, the vector may further comprise a marker sequence or heterologous ORF operably linked to the EMF.

Large numbers of suitable vectors and promoters are known to those of skill in the art and are commercially available for generating the recombinant constructs of the present invention. The following vectors are provided by way of example. Useful bacterial vectors include phagescript, PsiX174, pBluescript SK, pBS KS, pNH8a, pNH16a, pNH18a, pNH46a (available from Stratagene); pTrc99A, pKK223-3, pKK233-3, pDR540, pRIT5 (available from Pharmacia). Useful eukaryotic vectors include pWLneo, pSV2cat, pOG44, pXT1, pSG

(available from Stratagene) pSVK3, pBPV, pMSG, pSVL (available from Pharmacia).

Promoter regions can be selected from any desired gene using CAT (chloramphenicol transferase) vectors or other vectors with selectable markers.

5 Two appropriate vectors are pKK232-8 and pCM7. Particular named bacterial promoters include lacI, lacZ, T3, T7, gpt, lambda PR, and trc. Eukaryotic promoters include CMV immediate early, HSV thymidine kinase, early and late SV40, LTRs from retrovirus, and mouse metallothionein- I. Selection of the appropriate vector and promoter is well within the level of ordinary skill in the art.

10 The present invention further provides host cells containing any one of the isolated fragments of the *Streptococcus pneumoniae* genomic fragments and contigs of the present invention, wherein the fragment has been introduced into the host cell using known methods. The host cell can be a higher eukaryotic host cell, such as a mammalian cell, a lower eukaryotic host cell, such as a yeast cell, or  
15 a procaryotic cell, such as a bacterial cell.

A polynucleotide of the present invention, such as a recombinant construct comprising an ORF of the present invention, may be introduced into the host by a variety of well established techniques that are standard in the art, such as calcium phosphate transfection, DEAE, dextran mediated transfection and electroporation,  
20 which are described in, for instance, Davis, L. *et al.*, BASIC METHODS IN MOLECULAR BIOLOGY (1986).

A host cell containing one of the fragments of the *Streptococcus pneumoniae* genomic fragments and contigs of the present invention, can be used in conventional manners to produce the gene product encoded by the isolated  
25 fragment (in the case of an ORF) or can be used to produce a heterologous protein under the control of the EMF. The present invention further provides isolated polypeptides encoded by the nucleic acid fragments of the present invention or by degenerate variants of the nucleic acid fragments of the present invention. By "degenerate variant" is intended nucleotide fragments which differ  
30 from a nucleic acid fragment of the present invention (*e.g.*, an ORF) by nucleotide sequence but, due to the degeneracy of the Genetic Code, encode an identical polypeptide sequence.

Preferred nucleic acid fragments of the present invention are the ORFs and subfragments thereof depicted in Tables 2 and 3 which encode proteins.

A variety of methodologies known in the art can be utilized to obtain any one of the isolated polypeptides or proteins of the present invention. At the simplest level, the amino acid sequence can be synthesized using commercially available peptide synthesizers. This is particularly useful in producing small peptides and fragments of larger polypeptides. —Such short fragments as may be obtained most readily by synthesis are useful, for example, in generating antibodies against the native polypeptide, as discussed further below.

In an alternative method, the polypeptide or protein is purified from bacterial cells which naturally produce the polypeptide or protein. One skilled in the art can readily employ well-known methods for isolating polypeptides and proteins to isolate and purify polypeptides or proteins of the present invention produced naturally by a bacterial strain, or by other methods. Methods for isolation and purification that can be employed in this regard include, but are not limited to, immunochromatography, HPLC, size-exclusion chromatography, ion-exchange chromatography, and immuno-affinity chromatography.

The polypeptides and proteins of the present invention also can be purified from cells which have been altered to express the desired polypeptide or protein. As used herein, a cell is said to be altered to express a desired polypeptide or protein when the cell, through genetic manipulation, is made to produce a polypeptide or protein which it normally does not produce or which the cell normally produces at a lower level. Those skilled in the art can readily adapt procedures for introducing and expressing either recombinant or synthetic sequences into eukaryotic or prokaryotic cells in order to generate a cell which produces one of the polypeptides or proteins of the present invention.

Any host/vector system can be used to express one or more of the ORFs of the present invention. These include, but are not limited to, eukaryotic hosts such as HeLa cells, CV-1 cell, COS cells, and Sf9 cells, as well as prokaryotic host such as *E. coli* and *B. subtilis*. The most preferred cells are those which do not normally express the particular polypeptide or protein or which expresses the polypeptide or protein at low natural level.

"Recombinant," as used herein, means that a polypeptide or protein is derived from recombinant (*e.g.*, microbial or mammalian) expression systems. "Microbial" refers to recombinant polypeptides or proteins made in bacterial or fungal (*e.g.*, yeast) expression systems. As a product, "recombinant microbial" defines a polypeptide or protein essentially free of native endogenous substances and unaccompanied by associated native glycosylation. Polypeptides or proteins expressed in most bacterial cultures, *e.g.*, *E. coli*, will be free of glycosylation modifications; polypeptides or proteins expressed in yeast will have a glycosylation pattern different from that expressed in mammalian cells.

"Nucleotide sequence" refers to a heteropolymer of deoxyribonucleotides. Generally, DNA segments encoding the polypeptides and proteins provided by this invention are assembled from fragments of the *Streptococcus pneumoniae* genome and short oligonucleotide linkers, or from a series of oligonucleotides, to provide a synthetic gene which is capable of being expressed in a recombinant transcriptional unit comprising regulatory elements derived from a microbial or viral operon.

Recombinant expression vehicle or vector" refers to a plasmid or phage or virus or vector, for expressing a polypeptide from a DNA (RNA) sequence. The expression vehicle can comprise a transcriptional unit comprising an assembly of (1) a genetic regulatory elements necessary for gene expression in the host, including elements required to initiate and maintain transcription at a level sufficient for suitable expression of the desired polypeptide, including, for example, promoters and, where necessary, an enhancer and a polyadenylation signal; (2) a structural or coding sequence which is transcribed into mRNA and translated into protein, and (3) appropriate signals to initiate translation at the beginning of the desired coding region and terminate translation at its end. Structural units intended for use in yeast or eukaryotic expression systems preferably include a leader sequence enabling extracellular secretion of translated protein by a host cell. Alternatively, where recombinant protein is expressed without a leader or transport sequence, it may include an N-terminal methionine residue. This residue may or may not be subsequently cleaved from the expressed recombinant protein to provide a final product.

"Recombinant expression system" means host cells which have stably integrated a recombinant transcriptional unit into chromosomal DNA or carry the recombinant transcriptional unit extra chromosomally. The cells can be prokaryotic or eukaryotic. Recombinant expression systems as defined herein will express



heterologous polypeptides or proteins upon induction of the regulatory elements linked to the DNA segment or synthetic gene to be expressed.

Mature proteins can be expressed in mammalian cells, yeast, bacteria, or other cells under the control of appropriate promoters. Cell-free translation systems can also be employed to produce such proteins using RNAs derived from the DNA constructs of the present invention. Appropriate cloning and expression vectors for use with prokaryotic and eukaryotic hosts are described in Sambrook *et al.*, *Molecular Cloning: A Laboratory Manual*, 2<sup>nd</sup> Edition, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York (1989), the disclosure of which is hereby incorporated by reference in its entirety.

Generally, recombinant expression vectors will include origins of replication and selectable markers permitting transformation of the host cell, *e.g.*, the ampicillin resistance gene of *E. coli* and *S. cerevisiae* TRP1 gene, and a promoter derived from a highly expressed gene to direct transcription of a downstream structural sequence. Such promoters can be derived from operons encoding glycolytic enzymes such as 3-phosphoglycerate kinase (PGK), alpha-factor, acid phosphatase, or heat shock proteins, among others. The heterologous structural sequence is assembled in appropriate phase with translation initiation and termination sequences, and preferably, a leader sequence capable of directing secretion of translated protein into the periplasmic space or extracellular medium. Optionally, the heterologous sequence can encode a fusion protein including an N-terminal identification peptide imparting desired characteristics, *e.g.*, stabilization or simplified purification of expressed recombinant product.

Useful expression vectors for bacterial use are constructed by inserting a structural DNA sequence encoding a desired protein together with suitable translation initiation and termination signals in operable reading phase with a functional promoter. The vector will comprise one or more phenotypic selectable markers and an origin of replication to ensure maintenance of the vector and, when desirable, provide amplification within the host.

Suitable prokaryotic hosts for transformation include strains of *E. coli*, *B. subtilis*, *Salmonella typhimurium* and various species within the genera *Pseudomonas* and *Streptomyces*. Others may, also be employed as a matter of choice.

As a representative but non-limiting example, useful expression vectors for bacterial use can comprise a selectable marker and bacterial origin of replication

derived from commercially available plasmids comprising genetic elements of the well known cloning vector pBR322 (ATCC 37017). Such commercial vectors include, for example, pKK223-3 (available from Pharmacia Fine Chemicals, Uppsala, Sweden) and GEM 1 (available from Promega Biotec, Madison, WI, USA). These pBR322 "backbone" sections are combined with an appropriate promoter and the structural sequence to be expressed.

Following transformation of a suitable host strain and growth of the host strain to an appropriate cell density, the selected promoter, where it is inducible, is derepressed or induced by appropriate means (*e.g.*, temperature shift or chemical induction) and cells are cultured for an additional period to provide for expression of the induced gene product. Thereafter cells are typically harvested, generally by centrifugation, disrupted to release expressed protein, generally by physical or chemical means, and the resulting crude extract is retained for further purification.

Various mammalian cell culture systems can also be employed to express recombinant protein. Examples of mammalian expression systems include the COS-7 lines of monkey kidney fibroblasts, described in Gluzman, *Cell* 23:175 (1981), and other cell lines capable of expressing a compatible vector, for example, the C127, 3T3, CHO, HeLa and BHK cell lines.

Mammalian expression vectors will comprise an origin of replication, a suitable promoter and enhancer, and also any necessary ribosome binding sites, polyadenylation site, splice donor and acceptor sites, transcriptional termination sequences, and 5' flanking nontranscribed sequences. DNA sequences derived from the SV40 viral genome, for example, SV40 origin, early promoter, enhancer, splice, and polyadenylation sites may be used to provide the required nontranscribed genetic elements.

Recombinant polypeptides and proteins produced in bacterial culture is usually isolated by initial extraction from cell pellets, followed by one or more salting-out, aqueous ion exchange or size exclusion chromatography steps. Microbial cells employed in expression of proteins can be disrupted by any convenient method, including freeze-thaw cycling, sonication, mechanical disruption, or use of cell lysing agents. Protein refolding steps can be used, as necessary, in completing configuration of the mature protein. Finally, high performance liquid chromatography (HPLC) can be employed for final purification steps.

The present invention further includes isolated polypeptides, proteins and nucleic acid molecules which are substantially equivalent to those herein described. As used herein, substantially equivalent can refer both to nucleic acid and amino acid sequences, for example a mutant sequence, that varies from a reference sequence by one or more substitutions, deletions, or additions, the net effect of which does not result in an adverse functional dissimilarity between reference and subject sequences. For purposes of the present invention, sequences having equivalent biological activity, and equivalent expression characteristics are considered substantially equivalent. For purposes of determining equivalence, truncation of the mature sequence should be disregarded.

The invention further provides methods of obtaining homologs from other strains of *Streptococcus pneumoniae*, of the fragments of the *Streptococcus pneumoniae* genome of the present invention and homologs of the proteins encoded by the ORFs of the present invention. As used herein, a sequence or protein of *Streptococcus pneumoniae* is defined as a homolog of a fragment of the *Streptococcus pneumoniae* fragments or contigs or a protein encoded by one of the ORFs of the present invention, if it shares significant homology to one of the fragments of the *Streptococcus pneumoniae* genome of the present invention or a protein encoded by one of the ORFs of the present invention. Specifically, by using the sequence disclosed herein as a probe or as primers, and techniques such as PCR cloning and colony/plaque hybridization, one skilled in the art can obtain homologs.

As used herein, two nucleic acid molecules or proteins are said to "share significant homology" if the two contain regions which possess greater than 85% sequence (amino acid or nucleic acid) homology. Preferred homologs in this regard are those with more than 90% homology. Especially preferred are those with 93% or more homology. Among especially preferred homologs those with 95% or more homology are particularly preferred. Very particularly preferred among these are those with 97% and even more particularly preferred among these are homologs with 99% or more homology. The most preferred homologs among these are those with 99.9% homology or more. It will be understood that, among measures of homology, identity is particularly preferred in this regard.

Region specific primers or probes derived from the nucleotide sequence provided in SEQ ID NOS:1-391 or from a nucleotide sequence at least 95%, particularly at least 99%, especially at least 99.5% identical to a sequence of SEQ

ID NOS:1-391 can be used to prime DNA synthesis and PCR amplification, as well as to identify colonies containing cloned DNA encoding a homolog. Methods suitable to this aspect of the present invention are well known and have been described in great detail in many publications such as, for example, Innis *et al.*,  
5 *PCR Protocols*, Academic Press, San Diego, CA (1990)).

When using primers derived from SEQ ID NOS:1-391 or from a nucleotide sequence having an aforementioned identity to a sequence of SEQ ID NOS:1-391, one skilled in the art will recognize that by employing high stringency conditions (e.g., annealing at 50-60°C in 6X SSPC and 50% formamide, and washing at 50-  
10 65°C in 0.5X SSPC) only sequences which are greater than 75% homologous to the primer will be amplified. By employing lower stringency conditions (e.g., hybridizing at 35-37°C in 5X SSPC and 40-45% formamide, and washing at 42°C in 0.5X SSPC), sequences which are greater than 40-50% homologous to the primer will also be amplified.

15 When using DNA probes derived from SEQ ID NOS:1-391, or from a nucleotide sequence having an aforementioned identity to a sequence of SEQ ID NOS:1-391, for colony/plaque hybridization, one skilled in the art will recognize that by employing high stringency conditions (e.g., hybridizing at 50- 65°C in 5X SSPC and 50% formamide, and washing at 50- 65°C in 0.5X SSPC), sequences  
20 having regions which are greater than 90% homologous to the probe can be obtained, and that by employing lower stringency conditions (e.g., hybridizing at 35-37°C in 5X SSPC and 40-45% formamide, and washing at 42°C in 0.5X SSPC), sequences having regions which are greater than 35-45% homologous to the probe will be obtained.

25 Any organism can be used as the source for homologs of the present invention so long as the organism naturally expresses such a protein or contains genes encoding the same. The most preferred organism for isolating homologs are bacteria which are closely related to *Streptococcus pneumoniae*.

## 30 ILLUSTRATIVE USES OF COMPOSITIONS OF THE INVENTION

Each ORF provided in Tables 1 and 2 is identified with a function by homology to a known gene or polypeptide. As a result, one skilled in the art can use the polypeptides of the present invention for commercial, therapeutic and  
35 industrial purposes consistent with the type of putative identification of the

polypeptide. Such identifications permit one skilled in the art to use the *Streptococcus pneumoniae* ORFs in a manner similar to the known type of sequences for which the identification is made; for example, to ferment a particular sugar source or to produce a particular metabolite. A variety of reviews illustrative of this aspect of the invention are available, including the following reviews on the industrial use of enzymes, for example, BIOCHEMICAL ENGINEERING AND BIOTECHNOLOGY HANDBOOK, 2nd Ed., MacMillan Publications, Ltd., NY (1991) and BIOCATALYSTS IN ORGANIC SYNTHESSES, Tramper *et al.*, Eds., Elsevier Science Publishers, Amsterdam, The Netherlands (1985). A variety of exemplary uses that illustrate this and similar aspects of the present invention are discussed below.

### 1. Biosynthetic Enzymes

Open reading frames encoding proteins involved in mediating the catalytic reactions involved in intermediary and macromolecular metabolism, the biosynthesis of small molecules, cellular processes and other functions includes enzymes involved in the degradation of the intermediary products of metabolism, enzymes involved in central intermediary metabolism, enzymes involved in respiration, both aerobic and anaerobic, enzymes involved in fermentation, enzymes involved in ATP proton motor force conversion, enzymes involved in broad regulatory function, enzymes involved in amino acid synthesis, enzymes involved in nucleotide synthesis, enzymes involved in cofactor and vitamin synthesis, can be used for industrial biosynthesis.

The various metabolic pathways present in *Streptococcus pneumoniae* can be identified based on absolute nutritional requirements as well as by examining the various enzymes identified in Table 1-3 and SEQ ID NOS:1-391.

Of particular interest are polypeptides involved in the degradation of intermediary metabolites as well as non-macromolecular metabolism. Such enzymes include amylases, glucose oxidases, and catalase.

Proteolytic enzymes are another class of commercially important enzymes. Proteolytic enzymes find use in a number of industrial processes including the processing of flax and other vegetable fibers, in the extraction, clarification and depectinization of fruit juices, in the extraction of vegetables' oil and in the maceration of fruits and vegetables to give unicellular fruits. A detailed review of the proteolytic enzymes used in the food industry is provided in Rombouts *et al.*,

*Symbiosis* 21:79 (1986) and Voragen *et al.* in *Biocatalysts In Agricultural Biotechnology*, Whitaker *et al.*, Eds., *American Chemical Society Symposium Series* 389:93 (1989).

The metabolism of sugars is an important aspect of the primary metabolism of *Streptococcus pneumoniae*. Enzymes involved in the degradation of sugars, such as, particularly, glucose, galactose, fructose and xylose, can be used in industrial fermentation. Some of the important sugar transforming enzymes, from a commercial viewpoint, include sugar isomerases such as glucose isomerase. Other metabolic enzymes have found commercial use such as glucose oxidases which produces ketogulonic acid (KGA). KGA is an intermediate in the commercial production of ascorbic acid using the Reichstein's procedure, as described in Krueger *et al.*, *Biotechnology* 6(A), Rhine *et al.*, Eds., Verlag Press, Weinheim, Germany (1984).

Glucose oxidase (GOD) is commercially available and has been used in purified form as well as in an immobilized form for the deoxygenation of beer. See, for instance, Hartmeir *et al.*, *Biotechnology Letters* 1:21 (1979). The most important application of GOD is the industrial scale fermentation of gluconic acid. Market for gluconic acids which are used in the detergent, textile, leather, photographic, pharmaceutical, food, feed and concrete industry, as described, for example, in Bigelis *et al.*, beginning on page 357 in *GENE MANIPULATIONS AND FUNGI*; Benett *et al.*, Eds., Academic Press, New York (1985). In addition to industrial applications, GOD has found applications in medicine for quantitative determination of glucose in body fluids recently in biotechnology for analyzing syrups from starch and cellulose hydrosylates. This application is described in Owusu *et al.*, *Biochem. et Biophysica. Acta.* 872:83 (1986), for instance.

The main sweetener used in the world today is sugar which comes from sugar beets and sugar cane. In the field of industrial enzymes, the glucose isomerase process shows the largest expansion in the market today. Initially, soluble enzymes were used and later immobilized enzymes were developed (Krueger *et al.*, *Biotechnology, The Textbook of Industrial Microbiology*, Sinauer Associated Incorporated, Sunderland, Massachusetts (1990)). Today, the use of glucose- produced high fructose syrups is by far the largest industrial business using immobilized enzymes. A review of the industrial use of these enzymes is provided by Jorgensen, *Starch* 40:307 (1988).

Proteinases, such as alkaline serine proteinases, are used as detergent additives and thus represent one of the largest volumes of microbial enzymes used in the industrial sector. Because of their industrial importance, there is a large body of published and unpublished information regarding the use of these enzymes in industrial processes. (See Faultman *et al.*, Acid Proteases Structure Function and Biology, Tang, J., ed., Plenum Press, New York (1977) and Godfrey *et al.*, Industrial Enzymes, MacMillan Publishers, Surrey, UK (1983) and Hepner *et al.*, Report Industrial Enzymes by 1990, Hel Hepner & Associates, London (1986)).

Another class of commercially usable proteins of the present invention are the microbial lipases, described by, for instance, Macrae *et al.*, *Philosophical Transactions of the Chiral Society of London* 310:227 (1985) and Poserke, *Journal of the American Oil Chemist Society* 61:1758 (1984). A major use of lipases is in the fat and oil industry for the production of neutral glycerides using lipase catalyzed inter-esterification of readily available triglycerides. Application of lipases include the use as a detergent additive to facilitate the removal of fats from fabrics in the course of the washing procedures.

The use of enzymes, and in particular microbial enzymes, as catalyst for key steps in the synthesis of complex organic molecules is gaining popularity at a great rate. One area of great interest is the preparation of chiral intermediates. Preparation of chiral intermediates is of interest to a wide range of synthetic chemists particularly those scientists involved with the preparation of new pharmaceuticals, agrochemicals, fragrances and flavors. (See Davies *et al.*, *Recent Advances in the Generation of Chiral Intermediates Using Enzymes*, CRC Press, Boca Raton, Florida (1990)). The following reactions catalyzed by enzymes are of interest to organic chemists: hydrolysis of carboxylic acid esters, phosphate esters, amides and nitriles, esterification reactions, trans-esterification reactions, synthesis of amides, reduction of alkanones and oxoalkanates, oxidation of alcohols to carbonyl compounds, oxidation of sulfides to sulfoxides, and carbon bond forming reactions such as the aldol reaction.

When considering the use of an enzyme encoded by one of the ORFs of the present invention for biotransformation and organic synthesis it is sometimes necessary to consider the respective advantages and disadvantages of using a microorganism as opposed to an isolated enzyme. Pros and cons of using a whole cell system on the one hand or an isolated partially purified enzyme on the other

hand, has been described in detail by Bud *et al.*, Chemistry in Britain (1987), p. 127.

Amino transferases, enzymes involved in the biosynthesis and metabolism of amino acids, are useful in the catalytic production of amino acids. The advantages of using microbial based enzyme systems is that the amino transferase enzymes catalyze the stereo- selective synthesis of only L-amino acids and generally possess uniformly high catalytic rates. A description of the use of amino transferases for amino acid production is provided by Roselle-David, *Methods of Enzymology* 136:479 (1987).

Another category of useful proteins encoded by the ORFs of the present invention include enzymes involved in nucleic acid synthesis, repair, and recombination.

## 2. Generation of Antibodies

As described here, the proteins of the present invention, as well as homologs thereof, can be used in a variety of procedures and methods known in the art which are currently applied to other proteins. The proteins of the present invention can further be used to generate an antibody which selectively binds the protein. Such antibodies can be either monoclonal or polyclonal antibodies, as well fragments of these antibodies, and humanized forms.

The invention further provides antibodies which selectively bind to one of the proteins of the present invention and hybridomas which produce these antibodies. A hybridoma is an immortalized cell line which is capable of secreting a specific monoclonal antibody.

In general, techniques for preparing polyclonal and monoclonal antibodies as well as hybridomas capable of producing the desired antibody are well known in the art (Campbell, A. M., *Monoclonal Antibody Technology: Laboratory Techniques In Biochemistry And Molecular Biology*, Elsevier Science Publishers, Amsterdam, The Netherlands (1984); St. Groth *et al.*, *J. Immunol. Methods* 35: 1-21 (1980), Kohler and Milstein, *Nature* 256:495-497 (1975)), the trioma technique, the human B-cell hybridoma technique (Kozbor *et al.*, *Immunology Today* 4:72 (1983), pgs. 77-96 of Cole *et al.*, in *Monoclonal Antibodies And Cancer Therapy*, Alan R. Liss, Inc. (1985)). Any animal (mouse, rabbit, etc.) which is known to produce antibodies can be immunized with the pseudogene polypeptide. Methods for immunization are well known in the art. Such methods



include subcutaneous or interperitoneal injection of the polypeptide. One skilled in the art will recognize that the amount of the protein encoded by the ORF of the present invention used for immunization will vary based on the animal which is immunized, the antigenicity of the peptide and the site of injection.

5       The protein which is used as an immunogen may be modified or administered in an adjuvant in order to increase the protein's antigenicity. Methods of increasing the antigenicity of a protein are well known in the art and include, but are not limited to coupling the antigen with a heterologous protein (such as globulin or galactosidase) or through the inclusion of an adjuvant during immunization.

10       For monoclonal antibodies, spleen cells from the immunized animals are removed, fused with myeloma cells, such as SP2/0-Ag14 myeloma cells, and allowed to become monoclonal antibody producing hybridoma cells.

15       Any one of a number of methods well known in the art can be used to identify the hybridoma cell which produces an antibody with the desired characteristics. These include screening the hybridomas with an ELISA assay, western blot analysis, or radioimmunoassay (Lutz *et al.*, *Exp. Cell Res.* 175:109-124 (1988)).

20       Hybridomas secreting the desired antibodies are cloned and the class and subclass is determined using procedures known in the art (Campbell, A. M., *Monoclonal Antibody Technology: Laboratory Techniques in Biochemistry and Molecular Biology*, Elsevier Science Publishers, Amsterdam, The Netherlands (1984)).

25       Techniques described for the production of single chain antibodies (U. S. Patent 4,946,778) can be adapted to produce single chain antibodies to proteins of the present invention.

For polyclonal antibodies, antibody containing antisera is isolated from the immunized animal and is screened for the presence of antibodies with the desired specificity using one of the above-described procedures.

30       The present invention further provides the above-described antibodies in detectably labelled form. Antibodies can be detectably labelled through the use of radioisotopes, affinity labels (such as biotin, avidin, *etc.*), enzymatic labels (such as horseradish peroxidase, alkaline phosphatase, *etc.*) fluorescent labels (such as FITC or rhodamine, *etc.*), paramagnetic atoms, *etc.* Procedures for accomplishing such labeling are well-known in the art, for example see Sternberger *et al.*, *J. Histochem. Cytochem.* 18:315 (1970); Bayer, E. A. *et al.*, *Meth. Enzym.* 62:308

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(1979); Engval, E. *et al.*, *Immunol.* 109:129 (1972); Goding, J. W., *J. Immunol. Meth.* 13:215 (1976)).

The labeled antibodies of the present invention can be used for *in vitro*, *in vivo*, and in situ assays to identify cells or tissues in which a fragment of the  
5 *Streptococcus pneumoniae* genome is expressed.

The present invention further provides the above-described antibodies immobilized on a solid support. Examples of such solid supports include plastics such as polycarbonate, complex carbohydrates such as agarose and sepharose, acrylic resins and such as polyacrylamide and latex beads. Techniques for  
10 coupling antibodies to such solid supports are well known in the art (Weir, D. M. *et al.*, "Handbook of Experimental Immunology" 4th Ed., Blackwell Scientific Publications, Oxford, England, Chapter 10 (1986); Jacoby, W. D. *et al.*, *Meth. Enzym.* 34 Academic Press, N. Y. (1974)). The immobilized antibodies of the present invention can be used for *in vitro*, *in vivo*, and in situ assays as well as for  
15 immunoaffinity purification of the proteins of the present invention.

### 3. Diagnostic Assays and Kits

The present invention further provides methods to identify the expression of one of the ORFs of the present invention, or homolog thereof, in a test sample,  
20 using one of the DFs or antibodies of the present invention.

In detail, such methods comprise incubating a test sample with one or more of the antibodies or one or more of the DFs of the present invention and assaying for binding of the DFs or antibodies to components within the test sample.

Conditions for incubating a DF or antibody with a test sample vary.  
25 Incubation conditions depend on the format employed in the assay, the detection methods employed, and the type and nature of the DF or antibody used in the assay. One skilled in the art will recognize that any one of the commonly available hybridization, amplification or immunological assay formats can readily be adapted to employ the DFs or antibodies of the present invention. Examples of such assays  
30 can be found in Chard, T., *An Introduction to Radioimmunoassay and Related Techniques*, Elsevier Science Publishers, Amsterdam, The Netherlands (1986); Bullock, G. R. *et al.*, *Techniques in Immunocytochemistry*, Academic Press, Orlando, FL Vol. 1 (1982), Vol. 2 (1983), Vol. 3 (1985); Tijssen, P., *Practice and Theory of Enzyme Immunoassays: Laboratory Techniques in Biochemistry and*

*Molecular Biology*, Elsevier Science Publishers, Amsterdam, The Netherlands (1985).

The test samples of the present invention include cells, protein or membrane extracts of cells, or biological fluids such as sputum, blood, serum, plasma, or urine. The test sample used in the above-described method will vary based on the assay format, nature of the detection method and the tissues, cells or extracts used as the sample to be assayed. Methods for preparing protein extracts or membrane extracts of cells are well known in the art and can be readily be adapted in order to obtain a sample which is compatible with the system utilized.

In another embodiment of the present invention, kits are provided which contain the necessary reagents to carry out the assays of the present invention.

Specifically, the invention provides a compartmentalized kit to receive, in close confinement, one or more containers which comprises: (a) a first container comprising one of the DFs or antibodies of the present invention; and (b) one or more other containers comprising one or more of the following: wash reagents, reagents capable of detecting presence of a bound DF or antibody.

In detail, a compartmentalized kit includes any kit in which reagents are contained in separate containers. Such containers include small glass containers, plastic containers or strips of plastic or paper. Such containers allows one to efficiently transfer reagents from one compartment to another compartment such that the samples and reagents are not cross-contaminated, and the agents or solutions of each container can be added in a quantitative fashion from one compartment to another. Such containers will include a container which will accept the test sample, a container which contains the antibodies used in the assay, containers which contain wash reagents (such as phosphate buffered saline, Tris-buffers, *etc.*), and containers which contain the reagents used to detect the bound antibody or DF.

Types of detection reagents include labelled nucleic acid probes, labelled secondary antibodies, or in the alternative, if the primary antibody is labelled, the enzymatic, or antibody binding reagents which are capable of reacting with the labelled antibody. One skilled in the art will readily recognize that the disclosed DFs and antibodies of the present invention can be readily incorporated into one of the established kit formats which are well known in the art.

#### 4. Screening Assay for Binding Agents

Using the isolated proteins of the present invention, the present invention further provides methods of obtaining and identifying agents which bind to a protein encoded by one of the ORFs of the present invention or to one of the fragments and the *Streptococcus pneumoniae* fragment and contigs herein described.

In general, such methods comprise steps of:

(a) contacting an agent with an isolated protein encoded by one of the ORFs of the present invention, or an isolated fragment of the *Streptococcus pneumoniae* genome; and

(b) determining whether the agent binds to said protein or said fragment.

The agents screened in the above assay can be, but are not limited to, peptides, carbohydrates, vitamin derivatives, or other pharmaceutical agents. The agents can be selected and screened at random or rationally selected or designed using protein modeling techniques.

For random screening, agents such as peptides, carbohydrates, pharmaceutical agents and the like are selected at random and are assayed for their ability to bind to the protein encoded by the ORF of the present invention.

Alternatively, agents may be rationally selected or designed. As used herein, an agent is said to be "rationally selected or designed" when the agent is chosen based on the configuration of the particular protein. For example, one skilled in the art can readily adapt currently available procedures to generate peptides, pharmaceutical agents and the like capable of binding to a specific peptide sequence in order to generate rationally designed antipeptide peptides, for example see Hurby *et al.*, "Application of Synthetic Peptides: Antisense Peptides," in *Synthetic Peptides, A User's Guide*, W. H. Freeman, NY (1992), pp. 289-307, and Kaspczak *et al.*, *Biochemistry* 28:9230-8 (1989), or pharmaceutical agents, or the like.

In addition to the foregoing, one class of agents of the present invention, as broadly described, can be used to control gene expression through binding to one of the ORFs or EMFs of the present invention. As described above, such agents can be randomly screened or rationally designed/selected. Targeting the ORF or EMF allows a skilled artisan to design sequence specific or element specific agents, modulating the expression of either a single ORF or multiple ORFs which rely on the same EMF for expression control.

One class of DNA binding agents are agents which contain base residues which hybridize or form a triple helix by binding to DNA or RNA. Such agents can be based on the classic phosphodiester, ribonucleic acid backbone, or can be a variety of sulfhydryl or polymeric derivatives which have base attachment capacity.

5 Agents suitable for use in these methods usually contain 20 to 40 bases and are designed to be complementary to a region of the gene involved in transcription (triple helix - see Lee *et al.*, *Nucl. Acids Res.* 6:3073 (1979); Cooney *et al.*, *Science* 241:456 (1988); and Dervan *et al.*, *Science* 251:1360 (1991)) or to the mRNA itself (antisense - Okano, *J. Neurochem.* 56:560 (1991);  
10 *Oligodeoxynucleotides as Antisense Inhibitors of Gene Expression*, CRC Press, Boca Raton, FL (1988)). Triple helix- formation optimally results in a shut-off of RNA transcription from DNA, while antisense RNA hybridization blocks translation of an mRNA molecule into polypeptide. Both techniques have been demonstrated to be effective in model systems. Information contained in the  
15 sequences of the present invention can be used to design antisense and triple helix-forming oligonucleotides, and other DNA binding agents.

## 5. Pharmaceutical Compositions and Vaccines

The present invention further provides pharmaceutical agents which can be  
20 used to modulate the growth or pathogenicity of *Streptococcus pneumoniae*, or another related organism, *in vivo* or *in vitro*. As used herein, a "pharmaceutical agent" is defined as a composition of matter which can be formulated using known techniques to provide a pharmaceutical compositions. As used herein, the "pharmaceutical agents of the present invention" refers the pharmaceutical agents  
25 which are derived from the proteins encoded by the ORFs of the present invention or are agents which are identified using the herein described assays.

As used herein, a pharmaceutical agent is said to "modulate the growth pathogenicity of *Streptococcus pneumoniae* or a related organism, *in vivo* or *in vitro*," when the agent reduces the rate of growth, rate of division, or viability of  
30 the organism in question. The pharmaceutical agents of the present invention can modulate the growth or pathogenicity of an organism in many fashions, although an understanding of the underlying mechanism of action is not needed to practice the use of the pharmaceutical agents of the present invention. Some agents will modulate the growth by binding to an important protein thus blocking the biological  
35 activity of the protein, while other agents may bind to a component of the outer

surface of the organism blocking attachment or rendering the organism more prone to act the bodies nature immune system. Alternatively, the agent may comprise a protein encoded by one of the ORFs of the present invention and serve as a vaccine. The development and use of a vaccine based on outer membrane components are well known in the art.

As used herein, a "related organism" is a broad term which refers to any organism whose growth can be modulated by one of the pharmaceutical agents of the present invention. In general, such an organism will contain a homolog of the protein which is the target of the pharmaceutical agent or the protein used as a vaccine. As such, related organisms do not need to be bacterial but may be fungal or viral pathogens.

The pharmaceutical agents and compositions of the present invention may be administered in a convenient manner, such as by the oral, topical, intravenous, intraperitoneal, intramuscular, subcutaneous, intranasal or intradermal routes. The pharmaceutical compositions are administered in an amount which is effective for treating and/or prophylaxis of the specific indication. In general, they are administered in an amount of at least about 1 mg/kg body weight and in most cases they will be administered in an amount not in excess of about 1 g/kg body weight per day. In most cases, the dosage is from about 0.1 mg/kg to about 10 g/kg body weight daily, taking into account the routes of administration, symptoms, *etc.*

The agents of the present invention can be used in native form or can be modified to form a chemical derivative. As used herein, a molecule is said to be a "chemical derivative" of another molecule when it contains additional chemical moieties not normally a part of the molecule. Such moieties may improve the molecule's solubility, absorption, biological half life, *etc.* The moieties may alternatively decrease the toxicity of the molecule, eliminate or attenuate any undesirable side effect of the molecule, *etc.* Moieties capable of mediating such effects are disclosed in, among other sources, REMINGTON'S PHARMACEUTICAL SCIENCES (1980) cited elsewhere herein.

For example, such moieties may change an immunological character of the functional derivative, such as affinity for a given antibody. Such changes in immunomodulation activity are measured by the appropriate assay, such as a competitive type immunoassay. Modifications of such protein properties as redox or thermal stability, biological half-life, hydrophobicity, susceptibility to proteolytic degradation or the tendency to aggregate with carriers or into multimers also may

be effected in this way and can be assayed by methods well known to the skilled artisan.

The therapeutic effects of the agents of the present invention may be obtained by providing the agent to a patient by any suitable means (*e.g.*, inhalation, intravenously, intramuscularly, subcutaneously, enterally, or parenterally). It is preferred to administer the agent of the present invention so as to achieve an effective concentration within the blood or tissue in which the growth of the organism is to be controlled. To achieve an effective blood concentration, the preferred method is to administer the agent by injection. The administration may be by continuous infusion, or by single or multiple injections.

In providing a patient with one of the agents of the present invention, the dosage of the administered agent will vary depending upon such factors as the patient's age, weight, height, sex, general medical condition, previous medical history, *etc.* In general, it is desirable to provide the recipient with a dosage of agent which is in the range of from about 1 pg/kg to 10 mg/kg (body weight of patient), although a lower or higher dosage may be administered. The therapeutically effective dose can be lowered by using combinations of the agents of the present invention or another agent.

As used herein, two or more compounds or agents are said to be administered "in combination" with each other when either (1) the physiological effects of each compound, or (2) the serum concentrations of each compound can be measured at the same time. The composition of the present invention can be administered concurrently with, prior to, or following the administration of the other agent.

The agents of the present invention are intended to be provided to recipient subjects in an amount sufficient to decrease the rate of growth (as defined above) of the target organism.

The administration of the agent(s) of the invention may be for either a "prophylactic" or "therapeutic" purpose. When provided prophylactically, the agent(s) are provided in advance of any symptoms indicative of the organisms growth. The prophylactic administration of the agent(s) serves to prevent, attenuate, or decrease the rate of onset of any subsequent infection. When provided therapeutically, the agent(s) are provided at (or shortly after) the onset of an indication of infection. The therapeutic administration of the compound(s)

serves to attenuate the pathological symptoms of the infection and to increase the rate of recovery.

The agents of the present invention are administered to a subject, such as a mammal, or a patient, in a pharmaceutically acceptable form and in a therapeutically effective concentration. A composition is said to be "pharmacologically acceptable" if its administration can be tolerated by a recipient patient. Such an agent is said to be administered in a "therapeutically effective amount" if the amount administered is physiologically significant. An agent is physiologically significant if its presence results in a detectable change in the physiology of a recipient patient.

The agents of the present invention can be formulated according to known methods to prepare pharmaceutically useful compositions, whereby these materials, or their functional derivatives, are combined in a mixture with a pharmaceutically acceptable carrier vehicle. Suitable vehicles and their formulation, inclusive of other human proteins, *e.g.*, human serum albumin, are described, for example, in REMINGTON'S PHARMACEUTICAL SCIENCES, 16<sup>th</sup> Ed., Osol, A., Ed., Mack Publishing, Easton PA (1980). In order to form a pharmaceutically acceptable composition suitable for effective administration, such compositions will contain an effective amount of one or more of the agents of the present invention, together with a suitable amount of carrier vehicle.

Additional pharmaceutical methods may be employed to control the duration of action. Control release preparations may be achieved through the use of polymers to complex or absorb one or more of the agents of the present invention. The controlled delivery may be effectuated by a variety of well known techniques, including formulation with macromolecules such as, for example, polyesters, polyamino acids, polyvinyl, pyrrolidone, ethylenevinylacetate, methylcellulose, carboxymethylcellulose, or protamine, sulfate, adjusting the concentration of the macromolecules and the agent in the formulation, and by appropriate use of methods of incorporation, which can be manipulated to effectuate a desired time course of release. Another possible method to control the duration of action by controlled release preparations is to incorporate agents of the present invention into particles of a polymeric material such as polyesters, polyamino acids, hydrogels, poly(lactic acid) or ethylene vinylacetate copolymers. Alternatively, instead of incorporating these agents into polymeric particles, it is possible to entrap these materials in microcapsules prepared, for example, by coacervation techniques or by interfacial polymerization with, for example, hydroxymethylcellulose or gelatine-



microcapsules and poly(methylmethacrylate) microcapsules, respectively, or in colloidal drug delivery systems, for example, liposomes, albumin microspheres, microemulsions, nanoparticles, and nanocapsules or in macroemulsions. Such techniques are disclosed in REMINGTON'S PHARMACEUTICAL SCIENCES  
5 (1980).

The invention further provides a pharmaceutical pack or kit comprising one or more containers filled with one or more of the ingredients of the pharmaceutical compositions of the invention. Associated with such container(s) can be a notice in the form prescribed by a governmental agency regulating the manufacture, use or  
10 sale of pharmaceuticals or biological products, which notice reflects approval by the agency of manufacture, use or sale for human administration.

In addition, the agents of the present invention may be employed in conjunction with other therapeutic compounds.

## 15 6. Shot-Gun Approach to Megabase DNA Sequencing

The present invention further demonstrates that a large sequence can be sequenced using a random shotgun approach. This procedure, described in detail in the examples that follow, has eliminated the up front cost of isolating and ordering overlapping or contiguous subclones prior to the start of the sequencing  
20 protocols.

Certain aspects of the present invention are described in greater detail in the examples that follow. The examples are provided by way of illustration. Other aspects and embodiments of the present invention are contemplated by the inventors, as will be clear to those of skill in the art from reading the present  
25 disclosure.

## ILLUSTRATIVE EXAMPLES

### LIBRARIES AND SEQUENCING

#### 30 1. Shotgun Sequencing Probability Analysis

The overall strategy for a shotgun approach to whole genome sequencing follows from the Lander and Waterman (Landerman and Waterman, *Genomics* 2:231 (1988)) application of the equation for the Poisson distribution. According to this treatment, the probability,  $P$ , that any given base in a sequence of size  $L$ , in  
35 nucleotides, is not sequenced after a certain amount,  $n$ , in nucleotides, of random

sequence has been determined can be calculated by the equation  $P = e^{-m}$ , where  $m$  is  $L/n$ , the fold coverage. For instance, for a genome of 2.8 Mb,  $m=1$  when 2.8 Mb of sequence has been randomly generated (1X coverage). At that point,  $P = e^{-1} = 0.37$ . The probability that any given base has not been sequenced is the same as the probability that any region of the whole sequence  $L$  has not been determined and, therefore, is equivalent to the fraction of the whole sequence that has yet to be determined. Thus, at one-fold coverage, approximately 37% of a polynucleotide of size  $L$ , in nucleotides has not been sequenced. When 14 Mb of sequence has been generated, coverage is 5X for a 2.8 Mb and the unsequenced fraction drops to .0067 or 0.67%. 5X coverage of a 2.8 Mb sequence can be attained by sequencing approximately 17,000 random clones from both insert ends with an average sequence read length of 410 bp.

Similarly, the total gap length,  $G$ , is determined by the equation  $G = Le^{-m}$ , and the average gap size,  $g$ , follows the equation,  $g = L/n$ . Thus, 5X coverage leaves about 240 gaps averaging about 82 bp in size in a sequence of a polynucleotide 2.8 Mb long.

The treatment above is essentially that of Lander and Waterman, *Genomics* 2: 231 (1988).

## 2. Random Library Construction

In order to approximate the random model described above during actual sequencing, a nearly ideal library of cloned genomic fragments is required. The following library construction procedure was developed to achieve this end.

*Streptococcus pneumoniae* DNA is prepared by phenol extraction. A mixture containing 200  $\mu$ g DNA in 1.0 ml of 300 mM sodium acetate, 10 mM Tris-HCl, 1 mM Na-EDTA, 50% glycerol is processed through a nebulizer (IPI Medical Products) with a stream of nitrogen adjusted to 35 Kpa for 2 minutes. The sonicated DNA is ethanol precipitated and redissolved in 500  $\mu$ l TE buffer.

To create blunt-ends, a 100  $\mu$ l aliquot of the resuspended DNA is digested with 5 units of BAL31 nuclease (New England BioLabs) for 10 min at 30°C in 200  $\mu$ l BAL31 buffer. The digested DNA is phenol-extracted, ethanol-precipitated, redissolved in 100  $\mu$ l TE buffer, and then size-fractionated by electrophoresis through a 1.0% low melting temperature agarose gel. The section containing DNA fragments 1.6-2.0 kb in size is excised from the gel, and the LGT agarose is melted and the resulting solution is extracted with phenol to separate the agarose from the

DNA. DNA is ethanol precipitated and redissolved in 20  $\mu$ l of TE buffer for ligation to vector.

A two-step ligation procedure is used to produce a plasmid library with 97% inserts, of which >99% were single inserts. The first ligation mixture (50  $\mu$ l) contains 2  $\mu$ g of DNA fragments, 2  $\mu$ g pUC18 DNA (Pharmacia) cut with SmaI and dephosphorylated with bacterial alkaline phosphatase, and 10 units of T4 ligase (GIBCO/BRL) and is incubated at 14°C for 4 hr. The ligation mixture then is phenol extracted and ethanol precipitated, and the precipitated DNA is dissolved in 20  $\mu$ l TE buffer and electrophoresed on a 1.0% low melting agarose gel. Discrete bands in a ladder are visualized by ethidium bromide-staining and UV illumination and identified by size as insert (I), vector (v), v+I, v+2i, v+3i, etc. The portion of the gel containing v+I DNA is excised and the v+I DNA is recovered and resuspended into 20  $\mu$ l TE. The v+I DNA then is blunt-ended by T4 polymerase treatment for 5 min. at 37°C in a reaction mixture (50  $\mu$ l) containing the v+I linears, 500  $\mu$ M each of the 4 dNTPs, and 9 units of T4 polymerase (New England BioLabs), under recommended buffer conditions. After phenol extraction and ethanol precipitation the repaired v+I linears are dissolved in 20  $\mu$ l TE. The final ligation to produce circles is carried out in a 50  $\mu$ l reaction containing 5  $\mu$ l of v+I linears and 5 units of T4 ligase at 14°C overnight. After 10 min. at 70°C the following day, the reaction mixture is stored at -20°C.

This two-stage procedure results in a molecularly random collection of single-insert plasmid recombinants with minimal contamination from double-insert chimeras (<1%) or free vector (<3%).

Since deviation from randomness can arise from propagation the DNA in the host, *E. coli* host cells deficient in all recombination and restriction functions (A. Greener, *Strategies 3* (1):5 (1990)) are used to prevent rearrangements, deletions, and loss of clones by restriction. Furthermore, transformed cells are plated directly on antibiotic diffusion plates to avoid the usual broth recovery phase which allows multiplication and selection of the most rapidly growing cells.

Plating is carried out as follows. A 100  $\mu$ l aliquot of Epicurian Coli SURE II Supercompetent Cells (Stratagene 200152) is thawed on ice and transferred to a chilled Falcon 2059 tube on ice. A 1.7  $\mu$ l aliquot of 1.42 M beta-mercaptoethanol is added to the aliquot of cells to a final concentration of 25 mM. Cells are incubated on ice for 10 min. A 1  $\mu$ l aliquot of the final ligation is added to the cells and incubated on ice for 30 min. The cells are heat pulsed for 30 sec. at 42°C and

placed back on ice for 2 min. The outgrowth period in liquid culture is eliminated from this protocol in order to minimize the preferential growth of any given transformed cell. Instead the transformation mixture is plated directly on a nutrient rich SOB plate containing a 5 ml bottom layer of SOB agar (5% SOB agar: 20 g tryptone, 5 g yeast extract, 0.5 g NaCl, 1.5% Difco Agar per liter of media). The 5 ml bottom layer is supplemented with 0.4 ml of 50 mg/ml ampicillin per 100 ml SOB agar. The 15 ml top layer of SOB agar is supplemented with 1 ml X-Gal (2%), 1 ml MgCl<sub>2</sub> (1 M), and 1 ml MgSO<sub>4</sub> /100 ml SOB agar. The 15 ml top layer is poured just prior to plating. Our titer is approximately 100 colonies/10  $\mu$ l aliquot of transformation.<sup>2</sup><sub>4</sub>

All colonies are picked for template preparation regardless of size. Thus, only clones lost due to "poison" DNA or deleterious gene products are deleted from the library, resulting in a slight increase in gap number over that expected.

### 3. Random DNA Sequencing

High quality double stranded DNA plasmid templates are prepared using a "boiling bead" method developed in collaboration with Advanced Genetic Technology Corp. (Gaithersburg, MD) (Adams *et al.*, *Science* 252:1651 (1991); Adams *et al.*, *Nature* 355:632 (1992)). Plasmid preparation is performed in a 96-well format for all stages of DNA preparation from bacterial growth through final DNA purification. Template concentration is determined using Hoechst Dye and a Millipore Cytofluor. DNA concentrations are not adjusted, but low-yielding templates are identified where possible and not sequenced.

Templates are also prepared from two *Streptococcus pneumoniae* lambda genomic libraries. An amplified library is constructed in the vector Lambda GEM-12 (Promega) and an unamplified library is constructed in Lambda DASH II (Stratagene). In particular, for the unamplified lambda library, *Streptococcus pneumoniae* DNA (> 100 kb) is partially digested in a reaction mixture (200  $\mu$ l) containing 50  $\mu$ g DNA, 1X Sau3AI buffer, 20 units Sau3AI for 6 min. at 23°C. The digested DNA was phenol-extracted and electrophoresed on a 0.5% low melting agarose gel at 2V/cm for 7 hours. Fragments from 15 to 25 kb are excised and recovered in a final volume of 6  $\mu$ l. One  $\mu$ l of fragments is used with 1  $\mu$ l of DASHII vector (Stratagene) in the recommended ligation reaction. One  $\mu$ l of the ligation mixture is used per packaging reaction following the recommended protocol with the Gigapack II XL Packaging Extract (Stratagene, #227711). Phage

are plated directly without amplification from the packaging mixture (after dilution with 500  $\mu$ l of recommended SM buffer and chloroform treatment). Yield is about  $2.5 \times 10^3$  pfu/ $\mu$ l. The amplified library is prepared essentially as above except the lambda GEM-12 vector is used. After packaging, about  $3.5 \times 10^4$  pfu are plated on the restrictive NM539 host. The lysate is harvested in 2 ml of SM buffer and stored frozen in 7% dimethylsulfoxide. The phage titer is approximately  $1 \times 10^9$  pfu/ml.

Liquid lysates (100  $\mu$ l) are prepared from randomly selected plaques (from the unamplified library) and template is prepared by long-range PCR using T7 and T3 vector-specific primers.

Sequencing reactions are carried out on plasmid and/or PCR templates using the AB Catalyst LabStation with Applied Biosystems PRISM Ready Reaction Dye Primer Cycle Sequencing Kits for the M13 forward (M13-21) and the M13 reverse (M13RP1) primers (Adams *et al.*, *Nature* 368:474 (1994)). Dye terminator sequencing reactions are carried out on the lambda templates on a Perkin-Elmer 9600 Thermocycler using the Applied Biosystems Ready Reaction Dye Terminator Cycle Sequencing kits. T7 and SP6 primers are used to sequence the ends of the inserts from the Lambda GEM-12 library and T7 and T3 primers are used to sequence the ends of the inserts from the Lambda DASH II library. Sequencing reactions are performed by eight individuals using an average of fourteen AB 373 DNA Sequencers per day. All sequencing reactions are analyzed using the Stretch modification of the AB 373, primarily using a 34 cm well-to-read distance. The overall sequencing success rate very approximately is about 85% for M13-21 and M13RP1 sequences and 65% for dye-terminator reactions. The average usable read length is 485 bp for M13-21 sequences, 445bp for M13RP1 sequences, and 375 bp for dye-terminator reactions.

Richards *et al.*, Chapter 28 in AUTOMATED DNA SEQUENCING AND ANALYSIS, M. D. Adams, C. Fields, J. C. Venter, Eds., Academic Press, London, (1994) described the value of using sequence from both ends of sequencing templates to facilitate ordering of contigs in shotgun assembly projects of lambda and cosmid clones. We balance the desirability of both-end sequencing (including the reduced cost of lower total number of templates) against shorter read-lengths for sequencing reactions performed with the M13RP1 (reverse) primer compared to the M13-21 (forward) primer. Approximately one-half of the templates are sequenced from both ends. Random reverse sequencing reactions are

done based on successful forward sequencing reactions. Some M13RP1 sequences are obtained in a semi-directed fashion: M13-21: sequences pointing outward at the ends of contigs are chosen for M13RP1 sequencing in an effort to specifically order contigs.

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#### 4. Protocol for Automated Cycle Sequencing

The sequencing is carried out using ABI Catalyst robots and AB 373 Automated DNA Sequencers. The Catalyst robot is a publicly available sophisticated pipetting and temperature control robot which has been developed specifically for DNA sequencing reactions. The Catalyst combines pre-aliquoted templates and reaction mixes consisting of deoxy- and dideoxynucleotides, the thermostable Taq DNA polymerase, fluorescently-labelled sequencing primers, and reaction buffer. Reaction mixes and templates are combined in the wells of an aluminum 96-well thermocycling plate. Thirty consecutive cycles of linear amplification (*i.e.*, one primer synthesis) steps are performed including denaturation, annealing of primer and template, and extension; *i.e.*, DNA synthesis. A heated lid with rubber gaskets on the thermocycling plate prevents evaporation without the need for an oil overlay.

Two sequencing protocols are used: one for dye-labelled primers and a second for dye-labelled dideoxy chain terminators. The shotgun sequencing involves use of four dye-labelled sequencing primers, one for each of the four terminator nucleotide. Each dye-primer is labelled with a different fluorescent dye, permitting the four individual reactions to be combined into one lane of the 373 DNA Sequencer for electrophoresis, detection, and base-calling. ABI currently supplies pre-mixed reaction mixes in bulk packages containing all the necessary non-template reagents for sequencing. Sequencing can be done with both plasmid and PCR-generated templates with both dye-primers and dye-terminators with approximately equal fidelity, although plasmid templates generally give longer usable sequences.

Thirty-two reactions are loaded per AB373 Sequencer each day, for a total of 960 samples. Electrophoresis is run overnight following the manufacturer's protocols, and the data is collected for twelve hours. Following electrophoresis and fluorescence detection, the ABI 373 performs automatic lane tracking and base-calling. The lane-tracking is confirmed visually. Each sequence electropherogram (or fluorescence lane trace) is inspected visually and assessed for quality. Trailing

sequences of low quality are removed and the sequence itself is loaded via software to a Sybase database (archived daily to 8mm tape). Leading vector polylinker sequence is removed automatically by a software program. Average edited lengths of sequences from the standard ABI 373 are around 400 bp and depend mostly on the quality of the template used for the sequencing reaction. ABI 373 Sequencers converted to Stretch Liners provide a longer electrophoresis path prior to fluorescence detection and increase the average number of usable bases to 500-600 bp.

## 10           **INFORMATICS**

### 1. Data Management

A number of information management systems for a large-scale sequencing lab have been developed. (For review see, for instance, Kerlavage *et al.*, *Proceedings of the Twenty-Sixth Annual Hawaii International Conference on System Sciences*, IEEE Computer Society Press, Washington D. C., 585 (1993)) The system used to collect and assemble the sequence data was developed using the Sybase relational database management system and was designed to automate data flow wherever possible and to reduce user error. The database stores and correlates all information collected during the entire operation from template preparation to final analysis of the genome. Because the raw output of the ABI 373 Sequencers was based on a Macintosh platform and the data management system chosen was based on a Unix platform, it was necessary to design and implement a variety of multi-user, client-server applications which allow the raw data as well as analysis results to flow seamlessly into the database with a minimum of user effort.

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### 2. Assembly

An assembly engine (TIGR Assembler) developed for the rapid and accurate assembly of thousands of sequence fragments was employed to generate contigs. The TIGR assembler simultaneously clusters and assembles fragments of the genome. In order to obtain the speed necessary to assemble more than  $10^4$  fragments, the algorithm builds a hash table of 12 bp oligonucleotide subsequences to generate a list of potential sequence fragment overlaps. The number of potential overlaps for each fragment determines which fragments are likely to fall into repetitive elements. Beginning with a single seed sequence fragment, TIGR Assembler extends the current contig by attempting to add the best matching

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fragment based on oligonucleotide content. The contig and candidate fragment are aligned using a modified version of the Smith-Waterman algorithm which provides for optimal gapped alignments (Waterman, M. S., *Methods in Enzymology* 164:765 (1988)). The contig is extended by the fragment only if strict criteria for the quality of the match are met. The match criteria include the minimum length of overlap, the maximum length of an unmatched end, and the minimum percentage match. These criteria are automatically lowered by the algorithm in regions of minimal coverage and raised in regions with a possible repetitive element. The number of potential overlaps for each fragment determines which fragments are likely to fall into repetitive elements. Fragments representing the boundaries of repetitive elements and potentially chimeric fragments are often rejected based on partial mismatches at the ends of alignments and excluded from the current contig. TIGR Assembler is designed to take advantage of clone size information coupled with sequencing from both ends of each template. It enforces the constraint that sequence fragments from two ends of the same template point toward one another in the contig and are located within a certain range of base pairs (definable for each clone based on the known clone size range for a given library).

The process resulted in 391 contigs as represented by SEQ ID NOs:1-391.

### 3. Identifying Genes

The predicted coding regions of the *Streptococcus pneumoniae* genome were initially defined with the program GeneMark, which finds ORFs using a probabilistic classification technique. The predicted coding region sequences were used in searches against a database of all nucleotide sequences from GenBank (October, 1997), using the BLASTN search method to identify overlaps of 50 or more nucleotides with at least a 95% identity. Those ORFs with nucleotide sequence matches are shown in Table 1. The ORFs without such matches were translated to protein sequences and compared to a non-redundant database of known proteins generated by combining the Swiss-prot, PIR and GenPept databases. ORFs that matched a database protein with BLASTP probability less than or equal to 0.01 are shown in Table 2. The table also lists assigned functions based on the closest match in the databases. ORFs that did not match protein or nucleotide sequences in the databases at these levels are shown in Table 3.



## ILLUSTRATIVE APPLICATIONS

### 1. Production of an Antibody to a *Streptococcus pneumoniae* Protein

Substantially pure protein or polypeptide is isolated from the transfected or transformed cells using any one of the methods known in the art. The protein can also be produced in a recombinant prokaryotic expression system, such as *E. coli*, or can be chemically synthesized. Concentration of protein in the final preparation is adjusted, for example, by concentration on an Amicon filter device, to the level of a few micrograms/ml. Monoclonal or polyclonal antibody to the protein can then be prepared as follows.

### 2. Monoclonal Antibody Production by Hybridoma Fusion

Monoclonal antibody to epitopes of any of the peptides identified and isolated as described can be prepared from murine hybridomas according to the classical method of Kohler, G. and Milstein, C., *Nature* 256:495 (1975) or modifications of the methods thereof. Briefly, a mouse is repetitively inoculated with a few micrograms of the selected protein over a period of a few weeks. The mouse is then sacrificed, and the antibody producing cells of the spleen isolated. The spleen cells are fused by means of polyethylene glycol with mouse myeloma cells, and the excess unfused cells destroyed by growth of the system on selective media comprising aminopterin (HAT media). The successfully fused cells are diluted and aliquots of the dilution placed in wells of a microtiter plate where growth of the culture is continued. Antibody-producing clones are identified by detection of antibody in the supernatant fluid of the wells by immunoassay procedures, such as ELISA, as originally described by Engvall, E., *Meth. Enzymol.* 70:419 (1980), and modified methods thereof. Selected positive clones can be expanded and their monoclonal antibody product harvested for use. Detailed procedures for monoclonal antibody production are described in Davis, L. *et al.*, *Basic Methods in Molecular Biology*, Elsevier, New York. Section 21-2 (1989).

### 3. Polyclonal Antibody Production by Immunization

Polyclonal antiserum containing antibodies to heterogenous epitopes of a single protein can be prepared by immunizing suitable animals with the expressed protein described above, which can be unmodified or modified to enhance immunogenicity. Effective polyclonal antibody production is affected by many factors related both to the antigen and the host species. For example, small molecules tend to be less immunogenic than others and may require the use of carriers and adjuvant. Also, host animals vary in response to site of inoculations and dose, with both inadequate or excessive doses of antigen resulting in low titer antisera. Small doses (ng level) of antigen administered at multiple intradermal sites appears to be most reliable. An effective immunization protocol for rabbits can be found in Vaitukaitis, J. *et al.*, *J. Clin. Endocrinol. Metab.* 33:988-991 (1971).

Booster injections can be given at regular intervals, and antiserum harvested when antibody titer thereof, as determined semi-quantitatively, for example, by double immunodiffusion in agar against known concentrations of the antigen, begins to fall. See, for example, Ouchterlony, O. *et al.*, Chap. 19 in: *Handbook of Experimental Immunology*, Wier, D., ed. Blackwell (1973). Plateau concentration of antibody is usually in the range of 0.1 to 0.2 mg/ml of serum (about 12M). Affinity of the antisera for the antigen is determined by preparing competitive binding curves, as described, for example, by Fisher, D., Chap. 42 in: *Manual of Clinical Immunology*, second edition, Rose and Friedman, eds., Amer. Soc. For Microbiology, Washington, D. C. (1980)

Antibody preparations prepared according to either protocol are useful in quantitative immunoassays which determine concentrations of antigen-bearing substances in biological samples; they are also used semi- quantitatively or qualitatively to identify the presence of antigen in a biological sample. In addition, antibodies are useful in various animal models of pneumococcal disease as a means of evaluating the protein used to make the antibody as a potential vaccine target or as a means of evaluating the antibody as a potential immunotherapeutic or immunoprophylactic reagent.

#### 4. Preparation of PCR Primers and Amplification of DNA

Various fragments of the *Streptococcus pneumoniae* genome, such as those of Tables 1-3 and SEQ ID NOS:1-391 can be used, in accordance with the present invention, to prepare PCR primers for a variety of uses. The PCR primers are preferably at least 15 bases, and more preferably at least 18 bases in length. When selecting a primer sequence, it is preferred that the primer pairs have approximately the same G/C ratio, so that melting temperatures are approximately the same. The PCR primers and amplified DNA of this Example find use in the Examples that follow.

#### 5. Gene expression from DNA Sequences Corresponding to ORFs

A fragment of the *Streptococcus pneumoniae* genome provided in Tables 1-3 is introduced into an expression vector using conventional technology. Techniques to transfer cloned sequences into expression vectors that direct protein translation in mammalian, yeast, insect or bacterial expression systems are well known in the art. Commercially available vectors and expression systems are available from a variety of suppliers including Stratagene (La Jolla, California), Promega (Madison, Wisconsin), and Invitrogen (San Diego, California). If desired, to enhance expression and facilitate proper protein folding, the codon context and codon pairing of the sequence may be optimized for the particular expression organism, as explained by Hatfield *et al.*, U. S. Patent No. 5,082,767, incorporated herein by this reference.

The following is provided as one exemplary method to generate polypeptide(s) from cloned ORFs of the *Streptococcus pneumoniae* genome fragment. Bacterial ORFs generally lack a poly A addition signal. The addition signal sequence can be added to the construct by, for example, splicing out the poly A addition sequence from pSG5 (Stratagene)--using BglI and SalI restriction endonuclease enzymes and incorporating it into the mammalian expression vector pXT1 (Stratagene) for use in eukaryotic expression systems. pXT1 contains the LTRs and a portion of the gag gene of Moloney Murine Leukemia Virus. The positions of the LTRs in the construct allow efficient stable transfection. The vector includes the Herpes Simplex thymidine kinase promoter and the selectable neomycin gene. The *Streptococcus pneumoniae* DNA is obtained by PCR from the bacterial vector using oligonucleotide primers complementary to the *Streptococcus pneumoniae* DNA and containing restriction endonuclease sequences for PstI incorporated into the 5' primer and BglII at the 5' end of the corresponding *Streptococcus pneumoniae* DNA 3' primer, taking care to ensure that the *Streptococcus pneumoniae* DNA is positioned such that its followed with the poly A addition sequence. The purified fragment obtained from the resulting PCR reaction is digested with PstI, blunt ended with an exonuclease, digested with BglII, purified and ligated to pXT1, now containing a poly A addition sequence and digested BglII.

The ligated product is transfected into mouse NIH 3T3 cells using Lipofectin (Life Technologies, Inc., Grand Island, New York) under conditions outlined in the product specification. Positive transfectants are selected after growing the transfected cells in 600 ug/ml G418 (Sigma, St. Louis, Missouri). The protein is preferably released into the supernatant. However if the protein has membrane binding domains, the protein may additionally be retained within the cell or expression may be restricted to the cell surface. Since it may be necessary to purify and locate the transfected product, synthetic 15-mer peptides synthesized from the predicted *Streptococcus pneumoniae* DNA sequence are injected into mice to generate antibody to the polypeptide encoded by the *Streptococcus pneumoniae* DNA.

Alternatively and if antibody production ~~is not~~ possible, the *Streptococcus pneumoniae* DNA sequence is additionally incorporated into eukaryotic expression vectors and expressed as, for example, a globin fusion. Antibody to the globin moiety then is used to purify the chimeric protein. Corresponding protease cleavage sites are engineered between the globin moiety and the polypeptide encoded by the *Streptococcus pneumoniae* DNA so that the latter may be freed from the formed by simple protease digestion. One useful expression vector for generating globin chimerics is pSG5 (Stratagene). This vector encodes a rabbit globin. Intron II of the rabbit globin gene facilitates splicing of the expressed transcript, and the polyadenylation signal incorporated into the construct increases the level of expression. These techniques are well known to those skilled in the art of molecular biology. Standard methods are published in methods texts such as Davis *et al.*, cited elsewhere herein, and many of the methods are available from the technical assistance representatives from Stratagene, Life Technologies, Inc., or Promega. Polypeptides of the invention also may be produced using *in vitro* translation systems such as *in vitro* Express<sup>TM</sup> Translation Kit (Stratagene).

While the present invention has been described in some detail for purposes of clarity and understanding, one skilled in the art will appreciate that various changes in form and detail can be made without departing from the true scope of the invention.

All patents, patent applications and publications referred to above are hereby incorporated by reference.

TABLE I

S. pneumoniae - Coding regions containing known sequences

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	percent ident	HSP nt length	ORF nt length
1	1	437	1003	gb U41735	Streptococcus pneumoniae peptide methionine sulfoxide reductase (msrA) and homoserine kinase homolog (thrB) genes, complete cds	92	200	567
2	5	6169	5720	gb U04047	Streptococcus pneumoniae SSZ dextran glucosidase gene and insertion sequence IS1202 transposase gene, complete cds	96	450	450
2	6	6592	6167	emb Z83335 SP28	S. pneumoniae dexB, cap1(A, B, C, D, E, F, G, H, I, J, K) genes, dTDP-rhamnose biosynthesis genes and alia gene	98	426	426
3	11	9770	9147	emb Z83335 SP28	S. pneumoniae dexB, cap1(A, B, C, D, E, F, G, H, I, J, K) genes, dTDP-rhamnose biosynthesis genes and alia gene	94	624	624
3	12	10489	9671	emb Z83335 SP28	S. pneumoniae dexB, cap1(A, B, C, D, E, F, G, H, I, J, K) genes, dTDP-rhamnose biosynthesis genes and alia gene	91	819	819
3	13	11546	12019	gb U43526	Streptococcus pneumoniae neuraminidase B (nanB) gene, complete cds, and neuraminidase (nanA) gene, partial cds	99	474	474
3	14	12017	13375	gb U43526	Streptococcus pneumoniae neuraminidase B (nanB) gene, complete cds, and neuraminidase (nanA) gene, partial cds	99	1359	1359
3	15	13421	14338	gb U43526	Streptococcus pneumoniae neuraminidase B (nanB) gene, complete cds, and neuraminidase (nanA) gene, partial cds	99	918	918
3	16	14329	15171	gb U43526	Streptococcus pneumoniae neuraminidase B (nanB) gene, complete cds, and neuraminidase (nanA) gene, partial cds	99	843	843
3	17	15112	17282	gb U43526	Streptococcus pneumoniae neuraminidase B (nanB) gene, complete cds, and neuraminidase (nanA) gene, partial cds	99	2151	2151
3	18	17267	18397	gb U43526	Streptococcus pneumoniae neuraminidase B (nanB) gene, complete cds, and neuraminidase (nanA) gene, partial cds	99	1069	1131
4	1	46	1188	emb Y11463 SPUN	Streptococcus pneumoniae dnaG, rpoD, cpoA genes and ORF3 and ORF5	99	1143	1143
4	2	1198	2529	emb Y11463 SPUN	Streptococcus pneumoniae dnaG, rpoD, cpoA genes and ORF3 and ORF5	99	876	1332
5	7	11297	11473	gb U41735	Streptococcus pneumoniae peptide methionine sulfoxide reductase (msrA) and homoserine kinase homolog (thrB) genes, complete cds	82	175	177
6	7	7125	7364	emb Z77726 SP15	S. pneumoniae DNA for insertion sequence IS1318 (1372 bp)	93	238	240
6	8	7322	7570	emb Z77726 SP15	S. pneumoniae DNA for insertion sequence IS1318 (966 bp)	95	160	249
6	9	7533	7985	emb Z77726 SP15	S. pneumoniae DNA for insertion sequence IS1318 (966 bp)	99	453	453
6	23	20197	19711	emb Z83335 SP28	S. pneumoniae dexB, cap1(A, B, C, D, E, F, G, H, I, J, K) genes, dTDP-rhamnose biosynthesis genes and alia gene	96	465	465
7	10	8305	7682	emb Z83335 SP28	S. pneumoniae dexB, cap1(A, B, C, D, E, F, G, H, I, J, K) genes, dTDP-rhamnose biosynthesis genes and alia gene	95	624	624

TABLE I

S. pneumoniae - Coding regions containing known sequences

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	percent ident	HSP nt length	ORF nt length
7	11	9024	8206	emb Z83335 SP28	S.pneumoniae dexB, cap11A,B,C,D,E,F,G,H,I,J,K genes, dTDP-rhamnose biosynthesis genes and allA gene	95	819	819
10	11	9304	8078	gb L29333	Streptococcus pneumoniae methyl transferase (mtr) gene cluster, complete cds	93	513	1227
11	2	548	919	emb Z79691 SOOR	S.pneumoniae ynf(A,B,C,D,E), ftsL, pbpX and regR genes	99	316	372
11	3	892	1980	emb Z79691 SUOR	S.pneumoniae ynf(A,B,C,D,E), ftsL, pbpX and regR genes	99	1089	1089
11	5	3040	3477	emb Z79691 SOOR	S.pneumoniae ynf(A,B,C,D,E), ftsL, pbpX and regR genes	99	259	438
11	6	3480	3247	emb Z79691 SOOR	S.pneumoniae ynf(A,B,C,D,E), ftsL, pbpX and regR genes	99	234	234
11	7	3601	4557	emb Z79691 SOOR	S.pneumoniae ynf(A,B,C,D,E), ftsL, pbpX and regR genes	98	957	957
11	8	4506	4886	emb Z79691 SOOR	S.pneumoniae ynf(A,B,C,D,E), ftsL, pbpX and regR genes	99	381	381
11	9	4884	7142	emb X16367 SPPB	Streptococcus pneumoniae pbpX gene for penicillin binding protein 2X	99	2259	2259
11	10	7132	8124	emb X16367 SPPB	Streptococcus pneumoniae pbpX gene for penicillin binding protein 2X	98	70	993
13	1	53	1126	gb H31296	S.pneumoniae recP gene, complete cds	99	437	1074
14	3	1837	2148	emb Z83335 SP28	S.pneumoniae dexB, cap11A,B,C,D,E,F,G,H,I,J,K genes, dTDP-rhamnose biosynthesis genes and allA gene	87	96	312
14	4	2518	2108	gb H36180	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (putC) genes, complete cds	98	411	411
15	9	8942	8511	gb U09239	Streptococcus pneumoniae type 19F capsular polysaccharide biosynthesis operon, (cps19FABCDGHIJKLMNO) genes, complete cds, and allA gene, partial cds	89	340	432
17	7	3910	3458	emb Z77726 SP15	S.pneumoniae DNA for insertion sequence ISI318 (1172 bp)	98	453	453
17	8	4304	3873	emb Z77727 SP15	S.pneumoniae DNA for insertion sequence ISI318 (823 bp)	96	382	432
19	1	41	529	emb X94909 SP1G	S.pneumoniae iga gene	75	368	489
19	2	554	757	gb L07752	Streptococcus pneumoniae attachment site (attB), DNA sequence	99	167	204
19	3	946	1827	gb L07752	Streptococcus pneumoniae attachment site (attB), DNA sequence	94	100	882
20	1	937	182	gb U33115	Streptococcus pneumoniae orfL gene, partial cds, competence stimulating peptide precursor (comC), histidine protein kinase (comB) and response regulator (comE) genes, complete cds, trna-Arg and trna-Gln genes	99	756	756
20	2	2271	931	gb U33115	Streptococcus pneumoniae orfL gene, partial cds, competence stimulating peptide precursor (comC), histidine protein kinase (comB) and response regulator (comE) genes, complete cds, trna-Arg and trna-Gln genes	98	3341	3341

TABLE 1  
S. pneumoniae - Coding regions containing known sequences

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	percent ident	HSP nt length	ORF nt length
20	1	3175	2684	gb U76218	Streptococcus pneumoniae Competence stimulating peptide precursor ComC (comC), histidine kinase homolog ComD (comD), and response regulator homolog ComE (comE) genes, complete cds	99	492	492
20	4	3322	4527	gb AF000658	Streptococcus pneumoniae R801 tRNA-Arg gene, partial sequence, and putative serine protease (spitral), SPSPoj (spspoj), initiator protein (spdnas) and beta subunit of DNA polymerase III (spdnan) genes, complete cds	99	1206	1206
20	5	4573	5343	gb AF000658	Streptococcus pneumoniae R801 tRNA-Arg gene, partial sequence, and putative serine protease (spitral), SPSPoj (spspoj), initiator protein (spdnas) and beta subunit of DNA polymerase III (spdnan) genes, complete cds	99	771	771
20	6	5532	6917	gb AF000658	Streptococcus pneumoniae R801 tRNA-Arg gene, partial sequence, and putative serine protease (spitral), SPSPoj (spspoj), initiator protein (spdnas) and beta subunit of DNA polymerase III (spdnan) genes, complete cds	99	1386	1386
20	7	6995	8212	gb AF000658	Streptococcus pneumoniae R801 tRNA-Arg gene, partial sequence, and putative serine protease (spitral), SPSPoj (spspoj), initiator protein (spdnas) and beta subunit of DNA polymerase III (spdnan) genes, complete cds	99	1218	1218
20	8	8214	8471	gb AF000658	Streptococcus pneumoniae R801 tRNA-Arg gene, partial sequence, and putative serine protease (spitral), SPSPoj (spspoj), initiator protein (spdnas) and beta subunit of DNA polymerase III (spdnan) genes, complete cds	98	258	258
20	9	8534	9670	gb AF000658	Streptococcus pneumoniae R801 tRNA-Arg gene, partial sequence, and putative serine protease (spitral), SPSPoj (spspoj), initiator protein (spdnas) and beta subunit of DNA polymerase III (spdnan) genes, complete cds	99	1134	1137
22	14	11887	12267	emb Z77726 SP15	S. pneumoniae DNA for insertion sequence IS1318 (1372 bp)	99	226	381
22	15	12708	12356	emb Z77727 SP15	S. pneumoniae DNA for insertion sequence IS1318 (823 bp)	97	353	453
22	16	13165	12662	emb Z77726 SP15	S. pneumoniae DNA for insertion sequence IS1318 (1372 bp)	98	504	504
22	23	18398	18910	emb Z86112 SP28	S. pneumoniae genes encoding galacturonosyl transferase and transposase and insertion sequence IS1515	95	463	513
22	24	18829	19299	emb Z86112 SP28	S. pneumoniae genes encoding galacturonosyl transferase and transposase and insertion sequence IS1515	99	443	471
23	5	5624	4203	emb X52474 SPPL	S. pneumoniae ply gene for pneumolysin	99	1422	1422
23	6	6063	5629	gb H17717	S. pneumoniae pneumolysin gene, complete cds	98	197	435
26	1	5500	2	emb X94909 SP1C	S. pneumoniae iga gene	87	3487	5499
26	2	5823	5584	gb U7687	Streptococcus pneumoniae immunoglobulin A1 protease (iga) gene, complete cds	99	151	240
26	3	6878	5685	gb U7687	Streptococcus pneumoniae immunoglobulin A1 protease (iga) gene, complete cds	100	50	1194



TABLE I

S pneumoniae - Coding regions containing known sequences

Contig ID	ORF ID	Start (nt)	Stop (nt)	Match accession	match gene name	percent ident	HSP nt length	ORF nt length
26	8	14498	14854	emb 283335 SP28	S pneumoniae dexB, capsIIA, B, C, D, E, F, G, H, I, J, K genes, dTDP-rhamnose biosynthesis genes and <i>alia</i> gene	99	338	357
26	9	14763	14924	emb 283335 SP28	S pneumoniae dexB, capsIIA, B, C, D, E, F, G, H, I, J, K genes, dTDP-rhamnose biosynthesis genes and <i>alia</i> gene	100	94	162
26	10	14922	15173	gb U04047	Streptococcus pneumoniae SS2 dextran glucosidase gene and insertion sequence IS1202 transposase gene, complete cds	97	242	252
28	1	80	505	emb 283335 SP28	S pneumoniae dexB, capsIIA, B, C, D, E, F, G, H, I, J, K genes, dTDP-rhamnose biosynthesis genes and <i>alia</i> gene	99	426	426
28	2	503	952	gb U04047	Streptococcus pneumoniae SS2 dextran glucosidase gene and insertion sequence IS1202 transposase gene, complete cds	97	450	450
28	3	780	1208	gb U04047	Streptococcus pneumoniae SS2 dextran glucosidase gene and insertion sequence IS1202 transposase gene, complete cds	96	181	519
34	1	207	1523	gb L08611	Streptococcus pneumoniae maltose/maltodextrin uptake (malX) and two maltodextrin permease (malC and malD) genes, complete cds	99	1317	1317
34	2	1477	2367	gb L08611	Streptococcus pneumoniae maltose/maltodextrin uptake (malX) and two maltodextrin permease (malC and malD) genes, complete cds	96	795	891
34	3	2593	3420	gb L21856	Streptococcus pneumoniae malA gene, complete cds; malR gene, complete cds	96	446	828
34	4	2790	2647	gb L21856	Streptococcus pneumoniae malA gene, complete cds; malR gene, complete cds	98	137	144
34	5	3418	4416	gb L21856	Streptococcus pneumoniae malA gene, complete cds; malR gene, complete cds	96	999	999
34	9	7764	7507	gb U41735	Streptococcus pneumoniae peptide methionine sulfoxide reductase (msrA) and homoserine kinase homolog (thrB) genes, complete cds	93	201	258
34	16	10562	10257	emb X63602 SP80	S pneumoniae mmsA-Box	92	238	306
35	4	1176	1439	emb 283335 SP28	S pneumoniae dexB, capsIIA, B, C, D, E, F, G, H, I, J, K genes, dTDP-rhamnose biosynthesis genes and <i>alia</i> gene	87	248	264
35	5	1458	1961	gb U09239	Streptococcus pneumoniae type 19F capsular polysaccharide biosynthesis operon, (cpsI9fABCDEFHIJKLMNO) genes, complete cds, and <i>alia</i> gene, partial cds	98	264	504
35	17	16172	15477	emb X85787 SPCP	S pneumoniae dexB, capsIIA, B, C, D, E, F, G, H, I, J, K genes, dTDP-rhamnose biosynthesis genes and <i>alia</i> gene	97	696	696
35	18	16961	16170	emb 283335 SP28	S pneumoniae dexB, capsIIA, B, C, D, E, F, G, H, I, J, K genes, dTDP-rhamnose biosynthesis genes and <i>alia</i> gene	86	792	792
35	19	17620	16871	gb U09239	Streptococcus pneumoniae type 19F capsular polysaccharide biosynthesis operon, (cpsI9fABCDEFHIJKLMNO) genes, complete cds, and <i>alia</i> gene, partial cds	83	750	750

TABLE I

S. pneumoniae - Coding regions containing known sequences

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	percent ident	HSP nt length	ORF nt length
35	20	19061	17604	emb X85787 SPCP	S.pneumoniae dexB, cps14A, cps14B, cps14C, cps14D, cps14E, cps14F, cps14G, cps14H, cps14I, cps14J, cps14K, cps14L, tsaA genes	94	1458	1458
36	19	18960	18352	gb U40786	Streptococcus pneumoniae surface antigen A variant precursor (psaA) and 18 kDa protein genes, complete cds, and ORF1 gene, partial cds	99	609	609
36	20	19934	18966	gb U53509	Streptococcus pneumoniae surface adhesin A precursor (psaA) gene, complete cds	99	969	969
37	1	2743	179	emb Z67719 SPPA	S.pneumoniae parC, parE and transposase genes and unknown orf	99	2565	2565
37	2	2985	2824	emb Z67739 SPPA	S.pneumoniae parC, parE and transposase genes and unknown orf	100	162	162
37	3	5034	3070	emb Z67739 SPPA	S.pneumoniae parC, parE and transposase genes and unknown orf	99	1965	1965
37	4	5134	5790	emb Z67739 SPPA	S.pneumoniae parC, parE and transposase genes and unknown orf	99	657	657
37	5	6171	5833	emb Z67739 SPPA	S.pneumoniae parC, parE and transposase genes and unknown orf	96	339	339
38	19	12969	11268	gb M28679	S.pneumoniae promoter region DNA	100	64	300
39	2	1256	2137	gb U41735	Streptococcus pneumoniae peptide methionine sulfoxide reductase (msrA) and homoserine kinase homolog (thrB) genes, complete cds	99	882	882
39	3	2405	3370	gb U41735	Streptococcus pneumoniae peptide methionine sulfoxide reductase (msrA) and homoserine kinase homolog (thrB) genes, complete cds	99	966	966
40	9	5253	7208	gb M29686	S.pneumoniae mismatch repair (hmx8) gene, complete cds	99	1956	1956
41	1	3	1037	emb Z17307 SPRE	S.pneumoniae recA gene encoding RecA	99	1027	1035
41	2	1128	2713	emb Z34303 SPCT	Streptococcus pneumoniae cln operon encoding the clnA, recA, dinP, lytA genes, and downstream sequences	99	1386	1386
41	3	3083	4045	gb M13812	S.pneumoniae autolysin (lytA) gene, complete cds	99	963	963
41	4	3272	3096	gb M13812	S.pneumoniae autolysin (lytA) gene, complete cds	100	177	177
41	5	3603	3860	gb M13812	S.pneumoniae autolysin (lytA) gene, complete cds	100	258	258
41	6	4755	5162	gb U36660	Streptococcus pneumoniae ORF, complete cds	98	408	408
41	7	5270	5716	gb U36660	Streptococcus pneumoniae ORF, complete cds	98	447	447
41	8	6112	6918	gb U36660	Streptococcus pneumoniae ORF, complete cds	98	431	807
41	9	6916	7119	gb U36660	Streptococcus pneumoniae ORF, complete cds	100	204	204
41	10	7082	7650	gb U36660	Streptococcus pneumoniae ORF, complete cds	97	552	579
41	11	7680	7979	gb U36660	Streptococcus pneumoniae ORF, complete cds	98	81	300
41	12	9169	8717	emb Z77727 SPIS	S.pneumoniae DNA for insertion sequence IS1318 (823 bp)	97	353	453

TABLE I

S pneumoniae - Coding regions containing known sequences

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	percent ident	HSP nt length	ORF nt length
41	13	9533	9132	emb Z77725 SP1S	S. pneumoniae DNA for insertion sequence IS1381 (966 bp)	95	160	402
41	14	9669	9475	emb Z82001 SP28	S. pneumoniae pcps gene and open reading frames	100	189	195
44	5	7150	7555	emb Z82001 SP28	S. pneumoniae pcps gene and open reading frames	99	366	366
44	6	8059	7607	emb Z77726 SP1S	S. pneumoniae DNA for insertion sequence IS1318 (1372 bp)	97	453	453
44	7	8423	8022	emb Z77725 SP1S	S. pneumoniae DNA for insertion sequence IS1381 (966 bp)	95	160	402
44	8	8559	8165	emb Z82001 SP28	S. pneumoniae pcps gene and open reading frames	100	189	195
48	9	6480	4687	gb U139074	Streptococcus pneumoniae pyruvate oxidase (spox) gene, complete cds	99	1794	1794
49	2	231	2603	gb U20561	Streptococcus pneumoniae Exp7 gene, partial cds	100	216	2373
51	6	2407	2156	gb U04047	Streptococcus pneumoniae SS2 dextran glucosidase gene and insertion sequence IS1202 transposase gene, complete cds	97	242	252
51	7	2566	2405	emb Z83335 SP28	S. pneumoniae dexB, capl(A, B, C, D, E, F, G, H, I, J, K) genes, dTDP-rhamnose biosynthesis genes and allia gene	100	94	162
51	8	2831	2475	emb Z83335 SP28	S. pneumoniae dexB, capl(A, B, C, D, E, F, G, H, I, J, K) genes, dTDP-rhamnose biosynthesis genes and allia gene	99	338	357
54	11	12409	11105	emb Z83335 SP28	S. pneumoniae dexB, capl(A, B, C, D, E, F, G, H, I, J, K) genes, dTDP-rhamnose biosynthesis genes and allia gene	67	591	1305
55	22	20488	19949	emb Z83379 HS28	S. pneumoniae dfr gene (isolate 92)	99	540	540
61	11	11864	9900	emb Z16082 PNAL	Streptococcus pneumoniae allia gene	98	1965	1965
63	1	3	239	gb H18729	S. pneumoniae mismatch repair protein (hexA) gene, complete cds	100	237	237
63	2	233	2611	gb H18729	S. pneumoniae mismatch repair protein (hexA) gene, complete cds	99	2330	2379
63	3	2557	2823	gb H18729	S. pneumoniae mismatch repair protein (hexA) gene, complete cds	99	266	267
63	4	2958	4664	gb H18729	S. pneumoniae mismatch repair protein (hexA) gene, complete cds	95	69	1707
67	6	3770	3399	gb U20670	Streptococcus pneumoniae hyaluronidase gene, complete cds	96	372	372
67	7	7161	4171	gb U20670	Streptococcus pneumoniae hyaluronidase gene, complete cds	99	2938	2991
70	1	1	702	gb H14340	S. pneumoniae DpnI gene region encoding dpcC and dpcD, complete cds	100	693	702
70	2	678	1160	gb H14340	S. pneumoniae DpnI gene region encoding dpcC and dpcD, complete cds	100	483	483
70	3	2490	1210	gb H14339	S. pneumoniae DpnII gene region encoding dpcM, dpcN, dpcO, complete cds	98	462	1281
70	7	4210	4424	gb U04234	S. pneumoniae exodeoxyribonuclease (exoA) gene, complete cds	99	147	195
70	8	5197	4316	gb U04234	S. pneumoniae exodeoxyribonuclease (exoA) gene, complete cds	99	881	882

TABLE 1

S. pneumoniae - Coding regions containing known sequences

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	percent ident	HSP nt length	ORF nt length
70	13	8108	9874	gb L20562	Streptococcus pneumoniae Exp8 gene, partial cds	93	234	1767
71	22	27964	28341	emb X63602 SP80	S pneumoniae masA-Box	93	233	378
72	5	4607	3552	emb 226850 SPAT	S pneumoniae (M223) genes for ATPase a subunit, ATPase b subunit and ATPase c subunit	97	102	1056
73	1	471	133	emb X63602 SP80	S pneumoniae masA-Box	91	193	339
73	3	3658	977	gb J04479	S pneumoniae DNA polymerase I (polA) gene, complete cds	99	2682	2682
73	8	4864	5379	gb H36180	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (purC) genes, complete cds	98	318	516
77	3	2622	1999	emb 283335 SP28	S pneumoniae dexB, cap11A, B, C, D, E, F, G, H, I, J, K) genes, dTDP-rhamnose biosynthesis genes and alia gene	95	624	624
77	4	3341	2523	emb 283335 SP28	S pneumoniae dexB, cap11A, B, C, D, E, F, G, H, I, J, K) genes, dTDP-rhamnose biosynthesis genes and alia gene	91	819	819
78	1	341	3	emb X77249 SPR6	S pneumoniae (R6) clar/clah genes	99	339	339
78	2	1095	325	emb X77249 SPR6	S pneumoniae (R6) clar/clah genes	99	771	771
82	10	11436	10816	gb U90721	Streptococcus pneumoniae signal peptidase I (spi) gene, complete cds	97	621	621
82	11	12402	11434	gb U93576	Streptococcus pneumoniae ribonuclease HII (rnhB) gene, complete cds	98	953	969
82	12	12381	12704	gb U93576	Streptococcus pneumoniae ribonuclease HII (rnhB) gene, complete cds	100	51	324
83	8	3212	3550	emb 277727 SP18	S pneumoniae RNA for insertion sequence IS1318 (823 bp)	97	290	339
83	10	4662	6851	gb H36180	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (purC) genes, complete cds	99	2190	2190
83	11	6849	8213	gb H36180	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (purC) genes, complete cds	99	1365	1365
83	12	8216	9090	gb H36180	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (purC) genes, complete cds	99	855	855
83	13	9283	13017	gb L15190	Streptococcus pneumoniae SAICAR synthetase (purC) gene, complete cds	100	107	3735
83	23	22147	23313	gb L36923	Streptococcus pneumoniae beta-N-acetylhexosaminidase (stria) gene, complete cds	98	218	1167
83	24	23268	23450	gb L36923	Streptococcus pneumoniae beta-N-acetylhexosaminidase (stria) gene, complete cds	98	172	183
83	25	27527	23505	gb L36923	Streptococcus pneumoniae beta-N-acetylhexosaminidase (stria) gene, complete cds	99	1826	4023

TABLE 1

S. pneumoniae - Coding regions containing known sequences

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	percent ident	HSP nt length	ORF nt length
83	26	28472	27771	[gb U6923]	Streptococcus pneumoniae beta-D-acetylhexosaminidase (stxH) gene, complete cds	99	416	702
84	3	4554	6173	[emb 283335]SP28	S. pneumoniae dexB, cap1(A,B,C,D,E,F,G,H,I,J,K) genes, dTDP-channose biosynthesis genes and allia gene	98	697	1620
87	6	5951	5316	[emb 27725]SP15	S. pneumoniae DNA for insertion sequence IS1381 (966 bp)	96	439	636
88	5	2957	3511	[gb H36180]	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (purC) genes, complete cds	94	555	555
88	6	3466	4269	[gb H36180]	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (purC) genes, complete cds	94	804	804
89	13	9878	10093	[gb H36180]	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (purC) genes, complete cds	97	211	216
89	14	10062	10412	[emb 283335]SP28	S. pneumoniae dexB, cap1(A,B,C,D,E,F,G,H,I,J,K) genes, dTDP-channose biosynthesis genes and allia gene	97	335	351
91	10	5103	4941	[emb X63602]SP80	S. pneumoniae msaA-Box	89	237	363
97	4	1708	1520	[gb U41735]	Streptococcus pneumoniae peptide methionine sulfoxide reductase (msrA) and homoserine kinase homolog (thrB) genes, complete cds	91	140	189
99	1	89	700	[emb 283335]SP28	S. pneumoniae dexB, cap1(A,B,C,D,E,F,G,H,I,J,K) genes, dTDP-channose biosynthesis genes and allia gene	93	592	612
99	2	1773	775	[emb X17337]SPAH	Streptococcus pneumoniae am1 locus conferring aminopterin resistance	99	998	999
99	3	2794	1712	[emb X17337]SPAH	Streptococcus pneumoniae am1 locus conferring aminopterin resistance	99	1083	1083
99	4	3732	2788	[emb X17337]SPAH	Streptococcus pneumoniae am1 locus conferring aminopterin resistance	100	945	945
99	5	5249	3714	[emb X17337]SPAH	Streptococcus pneumoniae am1 locus conferring aminopterin resistance	100	1536	1536
99	6	1262	5277	[emb X17337]SPAH	Streptococcus pneumoniae am1 locus conferring aminopterin resistance	99	1986	1986
101	1	216	1538	[emb X54225]SP2H	S. pneumoniae epuA and endA genes for 7 kDa protein and membrane endonuclease	99	146	1323
101	2	1492	1719	[emb X54225]SP2H	S. pneumoniae epuA and endA genes for 7 kDa protein and membrane endonuclease	99	228	228
101	3	1694	1855	[emb X54225]SP2H	S. pneumoniae epuA and endA genes for 7 kDa protein and membrane endonuclease	100	162	162
101	4	1701	2582	[emb X54225]SP2H	S. pneumoniae epuA and endA genes for 7 kDa protein and membrane endonuclease	100	882	882
103	7	5556	5041	[emb 295914]SP29	Streptococcus pneumoniae sodA gene	100	396	516
104	2	1347	1556	[emb 27727]SP15	S. pneumoniae DNA for insertion sequence IS1318 (823 bp)	83	206	210

TABLE 1

S. pneumoniae - Coding regions containing known sequences

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	percent ident	HSP nt length	ORF nt length
105	5	5381	5028	emb Z67739 SPPA	S. pneumoniae parC, parE and transposase genes and unknown orf	98	353	354
105	6	6089	5379	emb Z67739 SPPA	S. pneumoniae parC, parE and transposase genes and unknown orf	98	84	711
107	4	2785	1880	emb X16022 SPPE	S. pneumoniae penA gene	98	72	906
107	5	2913	4988	emb X16022 SPPE	S. pneumoniae penA gene	99	1692	2076
107	6	4981	5595	emb X13116 SPPE	Streptococcus pneumoniae penA gene for penicillin binding protein 2b lacking N-term. (penicillin resistant strain)	91	107	615
108	9	9068	8718	emb Z67739 SPPA	S. pneumoniae parC, parE and transposase genes and unknown orf	95	342	351
108	12	11108	10922	emb Z67739 SPPA	S. pneumoniae parC, parE and transposase genes and unknown orf	99	199	387
109	3	2768	2241	emb Z77725 SPIS	S. pneumoniae DNA for insertion sequence IS1381 (966 bp)	96	61	528
109	4	2688	2855	emb Z77726 SPIS	S. pneumoniae DNA for insertion sequence IS1318 (1372 bp)	96	148	168
109	5	2862	3269	emb Z77727 SPIS	S. pneumoniae DNA for insertion sequence IS1318 (823 bp)	97	353	408
109	6	5320	3584	gb H18729	S. pneumoniae mismatch repair protein (hexA) gene, complete cds	100	371	1737
113	1	431	3	gb H36180	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (purC) genes, complete cds	95	429	429
113	10	9788	8532	emb X99400 SPDA	S. pneumoniae dacA gene and ORF	99	1257	1257
113	11	9870	10985	emb X99400 SPDA	S. pneumoniae dacA gene and ORF	99	1116	1116
114	3	2530	2030	gb H36180	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (purC) genes, complete cds	95	481	501
115	11	11130	10932	gb U04047	Streptococcus pneumoniae SS2 dextran glucosidase gene and insertion sequence IS1202 transposase gene, complete cds	97	372	372
117	1	897	3302	emb X72967 SPNA	S. pneumoniae nanA gene	99	2402	2406
117	2	3237	3831	emb X72967 SPNA	S. pneumoniae nanA gene	99	237	555
117	3	4327	3899	gb H36180	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (purC) genes, complete cds	98	429	429
121	2	1369	1941	gb U72720	Streptococcus pneumoniae heat shock protein 70 (dnaK) gene, complete cds and DnaJ (dnaJ) gene, partial cds	99	202	573
121	3	2412	4251	gb U72720	Streptococcus pneumoniae heat shock protein 70 (dnaK) gene, complete cds and DnaJ (dnaJ) gene, partial cds	99	1842	1842
122	8	5066	5587	gb U04047	Streptococcus pneumoniae SS2 dextran glucosidase gene and insertion sequence IS1202 transposase gene, complete cds	64	451	522

TABLE I

S. pneumoniae - Coding regions containing known sequences

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	percent ident	HSP nt length	ORF nt length
125	1	1811	189	[gb U16180]	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (puC) genes, complete cds	92	99	1623
128	15	12496	11204	[emb Z81335]SP28	S. pneumoniae dexB, cap1A, B, C, D, E, F, G, H, I, J, K, genes, dTDP-thiaminose biosynthesis genes and allA gene	91	705	1293
134	1	1	492	[emb Y10818]SPV1	S. pneumoniae spsA gene	99	203	492
134	2	556	2652	[gb AF019904]	Streptococcus pneumoniae choline binding protein A (cbpA) gene, partial cds	86	685	2097
134	3	1160	837	[emb Y10818]SPV1	S. pneumoniae spsA gene	86	324	324
134	4	3952	2882	[gb AF019904]	Streptococcus pneumoniae choline binding protein A (cbpA) gene, partial cds	98	215	1071
134	8	7992	9848	[gb U12567]	Streptococcus pneumoniae p13 glycerol-3-phosphate dehydrogenase (glpD) gene, partial cds, and glycerol uptake facilitator (glpF) and ORF3 genes, complete cds	99	285	1857
134	9	9846	10622	[gb U12567]	Streptococcus pneumoniae p13 glycerol-3-phosphate dehydrogenase (glpD) gene, partial cds, and glycerol uptake facilitator (glpF) and ORF3 genes, complete cds	99	570	777
134	10	10805	11122	[gb U12567]	Streptococcus pneumoniae p13 glycerol-3-phosphate dehydrogenase (glpD) gene, partial cds, and glycerol uptake facilitator (glpF) and ORF3 genes, complete cds	100	318	318
137	13	7970	8643	[gb U09219]	Streptococcus pneumoniae type 19F capsular polysaccharide biosynthesis operon, (cpsA)(ABCEFGHIJLMNO) genes, complete cds, and allA gene, partial cds	90	420	474
137	14	8590	8775	[emb Z81335]SP28	S. pneumoniae dexB, cap1A, B, C, D, E, F, G, H, I, J, K, genes, dTDP-thiaminose biosynthesis genes and allA gene	94	174	186
137	15	8773	8967	[emb Z81335]SP28	S. pneumoniae dexB, cap1A, B, C, D, E, F, G, H, I, J, K, genes, dTDP-thiaminose biosynthesis genes and allA gene	98	195	195
137	16	9223	9687	[emb Z17726]SP15	S. pneumoniae DNA for insertion sequence IS1318 (1372 bp)	96	446	465
137	17	9641	10051	[emb Z17727]SP15	S. pneumoniae DNA for insertion sequence IS1318 (82) bp	96	293	411
139	10	12998	12702	[emb X63602]SPB0	S. pneumoniae msaA-Box	90	234	297
141	8	7805	8938	[emb Z49988]SPM	Streptococcus pneumoniae msaA gene	99	338	1134
141	9	8936	10972	[emb Z49988]SPM	Streptococcus pneumoniae msaA gene	99	2037	2037
141	10	11472	12467	[emb Z49988]SPM	Streptococcus pneumoniae msaA gene	100	76	996
142	2	257	814	[gb M80215]	Streptococcus pneumoniae uva402 protein gene, complete cds	98	174	558
142	3	787	957	[gb M80215]	Streptococcus pneumoniae uva402 protein gene, complete cds	100	142	171
142	4	980	3022	[gb M80215]	Streptococcus pneumoniae uva402 protein gene, complete cds	95	1997	2043

TABLE I

S. pneumoniae - Coding regions containing known sequences

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	percent ident	HSP nt length	ORF nt length
142	5	3020	3595	gb H80215	Streptococcus pneumoniae uvs402 protein gene, complete cds	100	153	576
145	1	1	219	emb Z35135 SPAL	S. pneumoniae alla gene for amIA-like gene A	97	185	219
145	2	171	1994	gb U20556	Streptococcus pneumoniae p1pA gene, partial cds	99	1811	1824
145	3	2287	7599	emb Z47210 SPDE	S. pneumoniae dexB, cap3A, cap3B and cap3C genes and orfA	99	1052	5313
145	4	9934	7766	gb H90527	Streptococcus pneumoniae penicillin-binding protein (ponA) gene, complete cds	99	2169	2169
145	5	10488	9922	gb H90527	Streptococcus pneumoniae penicillin-binding protein (ponA) gene, complete cds	99	512	567
146	1	159	4	emb Z82002 SP28	S. pneumoniae pcgB and pcgC genes	98	156	156
146	2	344	90	emb Z82002 SP28	S. pneumoniae pcgB and pcgC genes	98	255	255
146	16	11795	10794	emb Z82002 SP28	S. pneumoniae pcgB and pcgC genes	85	276	1002
147	11	10678	10202	emb Z21702 SPUH	S. pneumoniae ung gene and mutX genes encoding uracil-DNA glycosylase and 8-oxodGTP nucleoside triphosphatase	98	477	477
147	12	11318	10676	emb Z21702 SPUH	S. pneumoniae ung gene and mutX genes encoding uracil-DNA glycosylase and 8-oxodGTP nucleoside triphosphatase	99	663	663
148	12	9009	8815	gb U41735	Streptococcus pneumoniae peptide methionine sulfoxide reductase (msrA) and homoserine kinase homolog (thrB) genes, complete cds	90	180	195
156	4	1154	1402	emb X61602 SP80	S. pneumoniae mmsA-Box	94	185	249
159	11	9048	8521	gb H16180	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (purC) genes, complete cds	98	526	528
160	1	1	147	emb Z26851 SPAT	S. pneumoniae (R6) genes for ATPase a subunit, ATPase b subunit and ATPase c subunit	100	142	147
160	2	179	898	emb Z26851 SPAT	S. pneumoniae (R6) genes for ATPase a subunit, ATPase b subunit and ATPase c subunit	99	720	720
160	3	906	1406	emb Z26850 SPAT	S. pneumoniae (H222) genes for ATPase a subunit, ATPase b subunit and ATPase c subunit	95	501	501
160	4	1373	1942	emb Z26850 SPAT	S. pneumoniae (H222) genes for ATPase a subunit, ATPase b subunit and ATPase c subunit	87	306	570
161	1	1	984	emb X77249 SPR6	S. pneumoniae (R6) clar/clah genes	99	984	984
161	7	6910	7497	emb X81917 SPCY	S. pneumoniae orf1gyrB and gyrB gene encoding DNA gyrase B subunit	99	437	588
161	8	7443	9386	emb X81917 SPCY	S. pneumoniae orf1gyrB and gyrB gene encoding DNA gyrase B subunit	98	1912	1944
163	1	2	2155	gb U20559	Streptococcus pneumoniae exp5 gene, partial cds	98	327	2154



TABLE I

S. pneumoniae - Coding regions containing known sequences

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	percent ident	HSP nt length	ORF nt length
165	1	32	1618	gb J01796	S.pneumoniae malX and malM genes encoding membrane protein and amyloamylase, complete cds, and malP gene encoding phosphorylase	99	1587	1587
165	2	1608	1902	gb J01796	S.pneumoniae malX and malM genes encoding membrane protein and amyloamylase, complete cds, and malP gene encoding phosphorylase	100	280	2295
166	1	378	4	emb Y11463 SPDH	Streptococcus pneumoniae dnaG, rpoD, cpoA genes and ORF's	100	375	375
166	2	1507	320	emb Y11463 SPDH	Streptococcus pneumoniae dnaG, rpoD, cpoA genes and ORF's and ORF's	99	1188	1188
166	3	3240	1432	emb Y11463 SPDH	Streptococcus pneumoniae dnaG, rpoD, cpoA genes and ORF's and ORF's	99	563	1809
167	1	1077	328	emb Z71552 SPAD	Streptococcus pneumoniae adcCBA operon	94	155	750
167	2	1844	999	emb Z71552 SPAD	Streptococcus pneumoniae adcCBA operon	98	405	846
167	3	2714	1842	emb Z71552 SPAD	Streptococcus pneumoniae adcCBA operon	97	604	873
167	4	3399	2641	emb Z71552 SPAD	Streptococcus pneumoniae adcCBA operon	99	703	759
168	1	1	2359	gb L20558	Streptococcus pneumoniae Exp4 gene, partial cds	99	282	2259
170	110	7138	7685	emb Z77726 SP15	S.pneumoniae DNA for insertion sequence IS1318 (1372 bp)	95	315	348
172	6	2462	4981	gb U47625	Streptococcus pneumoniae formate acetyltransferase (exp72) gene, partial cds	97	365	2520
175	1	373	20	gb H36180	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (purC) genes, complete cds	89	351	354
175	4	1843	1621	emb Z47210 SPDE	S.pneumoniae dexB, cap1A, cap1B and cap1C genes and orf's	95	89	1779
176	5	3984	2980	emb Z67739 SPPA	S.pneumoniae parC, parE and transposase genes and unknown orf	100	573	1005
178	1	3	425	emb Z67739 SPPA	S.pneumoniae parC, parE and transposase genes and unknown orf	95	423	423
179	1	426	70	emb Z83335 SPZ8	S.pneumoniae dexB, cap1A, B, C, D, E, F, G, H, I, J, K genes, JUDP-rhamnose biosynthesis genes and allA gene	99	338	357
180	3	3084	1655	emb X95718 SPGY	S.pneumoniae gyrA gene	99	381	1210
186	1	714	4	emb Z79691 SOOR	S.pneumoniae ynf(A, B, C, D, E), ftsL, pbpX and regR genes	98	59	711
186	2	2254	608	emb Z79691 SOOR	S.pneumoniae ynf(A, B, C, D, E), ftsL, pbpX and regR genes	98	315	1647
186	3	707	880	emb Z79691 SOOR	S.pneumoniae ynf(A, B, C, D, E), ftsL, pbpX and regR genes	98	174	174
189	1	2	259	gb U72720	Streptococcus pneumoniae heat shock protein 70 (dnaK) gene, complete cds and dnaJ (dnaJ) gene, partial cds	99	258	258
189	2	600	185	gb U72720	Streptococcus pneumoniae heat shock protein 70 (dnaK) gene, complete cds and dnaJ (dnaJ) gene, partial cds	98	204	216

TABLE I

S. pneumoniae - coding regions containing known sequences

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	percent ident	HSP nt length	ORF nt length
189	3	1018	851	[gb U272720]	Streptococcus pneumoniae heat shock protein 70 (dnaK) gene, complete cds and dnaJ (dnaJ) gene, partial cds	99	168	168
189	4	1012	2154	[gb U272720]	Streptococcus pneumoniae heat shock protein 70 (dnaK) gene, complete cds and dnaJ (dnaJ) gene, partial cds	99	1062	1143
191	9	7829	7524	[emb x63602 SP80]	S. pneumoniae msaA-Box	95	234	306
194	1	1	729	[gb M16180]	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (purC) genes, complete cds	91	728	729
199	2	1117	881	[emb Z83335 SP28]	S. pneumoniae dexB, cap1(A,B,C,D,E,F,G,H,I,J,K) genes, dTDP-rhamnose biosynthesis genes and allia gene	96	211	237
199	4	1499	1762	[emb Z83335 SP28]	S. pneumoniae dexB, cap1(A,B,C,D,E,F,G,H,I,J,K) genes, dTDP-rhamnose biosynthesis genes and allia gene	89	248	264
199	5	1781	2284	[emb Z83335 SP28]	S. pneumoniae dexB, cap1(A,B,C,D,E,F,G,H,I,J,K) genes, dTDP-rhamnose biosynthesis genes and allia gene	98	504	504
203	1	1977	337	[gb U20563]	Streptococcus pneumoniae Exp-10 gene, partial cds	99	342	1641
204	1	1145	3	[gb L16131]	Streptococcus pneumoniae exp-10 gene, complete cds, recA gene, 5' end	99	1143	1143
208	1	59	2296	[gb U89711]	Streptococcus pneumoniae pneumococcal surface protein A PspA (pspA) gene, complete cds	90	471	2238
213	3	2455	2123	[emb Z83335 SP28]	S. pneumoniae dexB, cap1(A,B,C,D,E,F,G,H,I,J,K) genes, dTDP-rhamnose biosynthesis genes and allia gene	96	332	333
216	1	368	12	[emb Z83335 SP28]	S. pneumoniae dexB, cap1(A,B,C,D,E,F,G,H,I,J,K) genes, dTDP-rhamnose biosynthesis genes and allia gene	99	338	357
216	3	2650	2327	[gb M28678]	S. pneumoniae promoter sequence DNA	98	86	324
222	1	417	4	[emb Z83335 SP28]	S. pneumoniae dexB, cap1(A,B,C,D,E,F,G,H,I,J,K) genes, dTDP-rhamnose biosynthesis genes and allia gene	94	414	414
227	3	5266	4238	[emb AJ000336 SP]	Streptococcus pneumoniae ldh gene	99	1029	1029
239	1	1	804	[gb M1296]	S. pneumoniae recP gene, complete cds	95	484	804
247	3	1625	1807	[gb M16180]	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (purC) genes, complete cds	94	178	183
249	3	921	1364	[emb Z83335 SP28]	S. pneumoniae dexB, cap1(A,B,C,D,E,F,G,H,I,J,K) genes, dTDP-rhamnose biosynthesis genes and allia gene	94	443	444
253	1	362	3	[gb M16180]	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (purC) genes, complete cds	99	360	360
253	5	1238	2050	[emb Z83335 SP28]	S. pneumoniae dexB, cap1(A,B,C,D,E,F,G,H,I,J,K) genes, dTDP-rhamnose biosynthesis genes and allia gene	95	420	813

TABLE I  
S. pneumoniae - Coding regions containing known sequences

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	percent ident	HSP nt length	ORF nt length
253	6	2069	2572	emb 283335 SP28	S. pneumoniae dxB, cap1A, B, C, D, E, F, G, H, I, J, K) genes, dTDP-rhamnose biosynthesis genes and <i>alia</i> gene	97	504	504
255	1	3	800	emb 282002 SP28	S. pneumoniae pcgB and pcgC genes	97	511	798
255	2	798	1841	emb 282002 SP28	S. pneumoniae pcgB and pcgC genes	97	672	1044
255	3	2493	1969	emb 267739 SPPA	S. pneumoniae parC, parE and transposase genes and unknown orf	92	435	525
257	2	985	770	emb X17337 SPAM	Streptococcus pneumoniae <i>ami</i> locus conferring aminopterin resistance	96	117	216
257	3	1245	907	gb M36180	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (putC) genes, complete cds	97	339	339
267	2	495	1208	gb U16156	Streptococcus pneumoniae dihydropterolate synthase (sulA), dihydrofolate synthetase (sulB), guanosine triphosphate cyclohydrolase (sulC), aldolase-pyrophosphokinase (sulD) genes, complete cds	95	84	714
267	3	1291	2277	gb U16156	Streptococcus pneumoniae dihydropterolate synthase (sulA), dihydrofolate synthetase (sulB), guanosine triphosphate cyclohydrolase (sulC), aldolase-pyrophosphokinase (sulD) genes, complete cds	97	755	987
267	4	2261	3601	gb U16156	Streptococcus pneumoniae dihydropterolate synthase (sulA), dihydrofolate synthetase (sulB), guanosine triphosphate cyclohydrolase (sulC), aldolase-pyrophosphokinase (sulD) genes, complete cds	98	1341	1341
267	5	3561	4136	gb U16156	Streptococcus pneumoniae dihydropterolate synthase (sulA), dihydrofolate synthetase (sulB), guanosine triphosphate cyclohydrolase (sulC), aldolase-pyrophosphokinase (sulD) genes, complete cds	99	576	576
267	6	4164	4949	gb U16156	Streptococcus pneumoniae dihydropterolate synthase (sulA), dihydrofolate synthetase (sulB), guanosine triphosphate cyclohydrolase (sulC), aldolase-pyrophosphokinase (sulD) genes, complete cds	99	748	786
267	7	5544	5140	gb U16156	Streptococcus pneumoniae dihydropterolate synthase (sulA), dihydrofolate synthetase (sulB), guanosine triphosphate cyclohydrolase (sulC), aldolase-pyrophosphokinase (sulD) genes, complete cds	100	186	405
268	4	1793	1990	emb X63602 SP80	S. pneumoniae <i>masA</i> -Box	89	194	198
271	1	562	104	gb M29686	S. pneumoniae mismatch repair (hexB) gene, complete cds	93	160	459
291	1	75	524	gb U04047	Streptococcus pneumoniae SS2 dextran glucosidase gene and insertion sequence IS1202 transposase gene, complete cds	96	450	450
291	2	1001	525	emb 283335 SP28	S. pneumoniae dxB, cap1A, B, C, D, E, F, G, H, I, J, K) genes, dTDP-rhamnose biosynthesis genes and <i>alia</i> gene	87	205	477
291	3	807	559	emb 283335 SP28	S. pneumoniae dxB, cap1A, B, C, D, E, F, G, H, I, J, K) genes, dTDP-rhamnose biosynthesis genes and <i>alia</i> gene	90	170	249
291	4	1374	1099	gb M36180	Streptococcus pneumoniae transposase, (comA and comB) and SAICAR synthetase (putC) genes, complete cds	85	264	276

## TABLE 1

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	percent ident	HSP nt length	ORF nt length
293	1	3	1673	emb Z67740 SPGY	S.pneumoniae gyrB gene and unknown orf	98	553	1671
296	1	1434	151	emb Z47210 SPDE	S.pneumoniae dexB, cap1A, cap1B and cap1C genes and orfs	99	430	1284
317	1	157	510	emb Z67739 SPPA	S.pneumoniae parC, parE and transposase genes and unknown orf	89	353	354
325	2	1237	485	emb Z83335 SPZ8	S.pneumoniae dexB, cap1A, B, C, D, E, F, G, H, I, J, K genes, dTDP-rhamnose biosynthesis genes and alia gene	91	299	753
326	1	1	462	emb Z82001 SPZ8	S.pneumoniae pcpsA gene and open reading frames	100	233	462
327	1	603	64	emb Z83335 SPZ8	S.pneumoniae dexB, cap1A, B, C, D, E, F, G, H, I, J, K genes, dTDP-rhamnose biosynthesis genes and alia gene	94	89	540
334	1	153	545	gb U041735	Streptococcus pneumoniae peptide methionine sulfoxide reductase (msrA) and homoserine kinase homolog (thrB) genes, complete cds	87	91	393
336	1	304	93	emb Z26450 SPAT	S.pneumoniae (M223) genes for ATPase a subunit, ATPase b subunit and ATPase c subunit	97	102	216
360	1	1	519	emb Z67739 SPPA	S.pneumoniae parC, parE and transposase genes and unknown orf	95	435	519
360	4	1598	1960	emb Z83335 SPZ8	S.pneumoniae dexB, cap1A, B, C, D, E, F, G, H, I, J, K genes, dTDP-rhamnose biosynthesis genes and alia gene	94	353	363
362	1	673	2	emb Z83335 SPZ8	S.pneumoniae dexB, cap1A, B, C, D, E, F, G, H, I, J, K genes, dTDP-rhamnose biosynthesis genes and alia gene	95	63	672
362	2	1168	728	gb U040471	Streptococcus pneumoniae SS2 dextran glucosidase gene and insertion sequence IS1202 transposase gene, complete cds	96	441	441
384	1	347	111	emb X85787 SPCP	S.pneumoniae dexB, cps14A, cps14B, cps14C, cps14D, cps14E, cps14F, cps14G, cps14H, cps14I, cps14J, cps14K, cps14L, tsaA genes	94	54	237

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
228	2	1760	1942	pir F60663 F606	translation elongation factor Tu Streptococcus oralis	100	100	183
319	1	2	205	gi 984927	neomycin phosphotransferase (cloning vector pBSL99)	100	100	204
260	1	2	1138	pir F60663 F606	translation elongation factor Tu Streptococcus oralis	99	98	1137
25	2	486	1394	gi 1574895	hypothetical (Haemophilus influenzae)	98	96	909
94	2	685	1002	gi 310627	phosphoenolpyruvate:sugar phosphotransferase system HPr (Streptococcus mutans)	98	93	318
312	1	190	2	gi 347999	ATP-dependent protease proteolytic subunit (Streptococcus salivarius)	98	95	189
329	1	1	807	gi 928848	inosine monophosphate dehydrogenase (Streptococcus pyogenes)	98	94	807
336	2	290	589	gi 987030	lacZ gene product (unidentified cloning vector)	98	98	300
181	9	5948	7166	gi 153755	phospho-beta-D-galactosidase (EC 3.2.1.85) (Lactococcus lactis cremoris)	97	94	1419
312	2	1044	361	gi 347998	urecili phosphoribosyltransferase (Streptococcus salivarius)	97	88	684
32	8	6575	7486	sp P17214 ERA_S	GTP-BINDING PROTEIN ERA HOMOLOG	96	91	912
94	3	951	2741	gi 153615	phosphoenolpyruvate:sugar phosphotransferase system enzyme I (Streptococcus salivarius)	96	92	1791
127	1	1	168	gi 581299	initiation factor IF-1 (Lactococcus lactis)	96	89	168
128	14	10438	11154	gi 1276873	Deob (Streptococcus thermophilus)	96	93	717
181	4	1362	1598	gi 46606	lacD polypeptide (AA 1-326) (Staphylococcus aureus)	96	80	237
238	1	1	834	gi 1743856	intragenetic coaggregation-relevant adhesin (Streptococcus gordonii)	96	93	834
319	2	115	441	gi 208225	heat-shock protein 82/neomycin phosphotransferase fusion protein (hsp82-neo) (unidentified cloning vector)	96	96	327
54	12	8622	10967	gnl p10j100972	Pyruvate formate-lyase (Streptococcus mutans)	95	89	2346
181	2	606	1289	gi 149396	lacD (Lactococcus lactis)	95	89	684
46	3	3410	3045	gi 1850606	YlxM (Streptococcus mutans)	94	86	366
89	10	7972	7337	gi 703442	chymidine kinase (Streptococcus gordonii)	94	86	636
148	9	6431	7154	gi 995767	UDP-glucose pyrophosphorylase (Streptococcus pyogenes)	94	85	924
160	7	4430	5848	gi 153573	Hu ATPase (Enterococcus faecalis)	94	87	1419
2	3	4598	3513	gi 153763	plasma receptor (Streptococcus pyogenes)	93	86	1086
12	8	7877	6204	gi 1103865	formyl-tetrahydrofolate synthetase (Streptococcus mutans)	93	84	1674

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
65	11	4734	5120	gi 40150	L14 protein (AA 1-122) [Bacillus subtilis]	93	87	387
68	1	53	1297	gi 47341	antitumor protein [Streptococcus pyogenes]	93	87	1245
80	1	3	299	gnl PID d101166	ribosomal protein S7 [Bacillus subtilis]	93	84	297
127	3	695	1093	gi 142462	ribosomal protein S11 [Bacillus subtilis]	93	86	399
160	5	1924	3462	gi 1773264	ATPase, alpha subunit [Streptococcus mutans]	93	85	1539
211	5	1757	3047	gi 535273	aminopeptidase C [Streptococcus thermophilus]	93	82	711
262	1	16	564	gi 149394	lacB [Lactococcus lactis]	93	90	549
366	1	197	3	gi 295259	cryptophan synthase beta subunit [Synecocystis sp.]	93	91	195
25	3	1392	1976	gi 1574496	hypothetical [Haemophilus influenzae]	92	80	585
36	21	2081	19927	gi 310632	hydrophobic membrane protein [Streptococcus gordonii]	92	86	855
181	3	1265	1534	gi 149196	lacD [Lactococcus lactis]	92	83	270
181	7	1662	4060	gi 149410	enzyme III [Lactococcus lactis]	92	83	399
32	4	5631	3937	gnl PID 294090	fibronectin-binding protein-like protein A [Streptococcus gordonii]	91	85	1695
46	2	1054	1462	gi 1850607	signal recognition particle Fth [Streptococcus mutans]	91	84	1593
65	10	4442	4726	pir SI7865 SI78	ribosomal protein S17 - Bacillus stearothermophilus	91	80	285
77	2	260	1900	gi 287871	groEL gene product [Lactococcus lactis]	91	82	1641
84	1	2	2056	gi 871784	Clp-like ATP-dependent protease binding subunit [Bos taurus]	91	79	2055
99	8	10750	9272	gi 153740	sucrose phosphorylase [Streptococcus mutans]	91	84	1479
99	9	11947	111072	gi 151739	membrane protein [Streptococcus mutans]	91	78	876
127	5	2065	2469	pir S07223 RS85	ribosomal protein L17 - Bacillus stearothermophilus	91	78	405
132	6	9539	9390	gi 143065	hubst [Bacillus stearothermophilus]	91	89	150
137	8	4765	6153	gnl PID d100347	Na <sup>+</sup> ATPase beta subunit [Enterococcus hirae]	91	79	1389
151	7	11119	9734	gi 1815614	glutamine synthetase type I [Streptococcus agalactiae]	91	82	1386
201	2	1798	278	gi 2208998	dextran glucosidase DexS [Streptococcus suis]	91	79	1521
222	2	673	1839	gi 153741	ATP-binding protein [Streptococcus mutans]	91	85	1167
293	5	4113	4400	gi 1196921	unknown protein [insertion sequence IS861]	91	71	288
32	7	6166	6570	pir A36933 A369	diacylglycerol kinase homolog - Streptococcus mutans	90	77	405

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
33	2	841	527	[gi1196921]	unknown protein (insertion sequence IS861)	90	70	315
48	27	120908	19757	[gnlP10]e274705	lactate oxidase (Streptococcus iniae)	90	80	1152
55	21	119777	18515	[gnlP10]e221213	ClpX protein (Bacillus subtilis)	90	75	1263
56	2	717	977	[gi11710133]	flagellar filament cap (Burrelia burgdorferi)	90	50	261
65	1	1	606	[gi1165103]	L3 (Bacillus subtilis)	90	75	606
114	1	2	988	[gi1151562]	aspartate beta-semialdehyde dehydrogenase (EC 1.2.1.11) (Streptococcus mutans)	90	80	987
120	1	1345	827	[gi1407880]	ORF1 (Streptococcus equisimilis)	90	75	519
159	12	7690	8298	[gi1143012]	GMP synthetase (Bacillus subtilis)	90	84	609
166	4	4076	3282	[gi11661179]	high affinity branched chain amino acid transport protein (Streptococcus mutans)	90	78	795
183	1	28	1195	[gi1308858]	ATP:pyruvate 2-O-phosphotransferase (Lactococcus lactis)	90	76	1168
191	3	2891	1662	[gi1149521]	cryptophan synthase beta subunit (Lactococcus lactis)	90	78	1230
198	2	1551	436	[gi12323342]	(AF014460) CcpA (Streptococcus mutans)	90	76	1116
305	1	37	783	[gi11571551]	asparagine synthetase A (asnA) (Haemophilus influenzae)	90	80	747
8	3	2285	3343	[gi1149434]	putative (Lactococcus lactis)	89	78	1059
46	8	7577	7362	[pir1A4543]A454	ribosomal protein L19 - Bacillus stearothermophilus	89	76	216
49	9	8363	10342	[gi1153792]	recp peptide (Streptococcus pneumoniae)	89	83	1980
51	14	18410	119447	[gi1308857]	ATP-D-fructose 6-phosphate 1-phosphotransferase (Lactococcus lactis)	89	81	1018
57	11	9686	10669	[gnlP10]d100932	H2O-forming NADH Oxidase (Streptococcus mutans)	89	77	984
65	5	2418	2786	[gi1165307]	S19 (Bacillus subtilis)	89	81	369
65	8	3806	4225	[sp1P14577]RL16	50S RIBOSOMAL PROTEIN L16	89	82	420
65	18	8319	8719	[gi1143417]	ribosomal protein S5 (Bacillus stearothermophilus)	89	76	501
73	9	6337	5315	[gi1532204]	prs (Listeria monocytogenes)	89	70	1023
76	3	3360	1465	[gnlP10]e200671	lepA gene product (Bacillus subtilis)	89	76	1896
99	10	12818	11919	[gi1153738]	membrane protein (Streptococcus mutans)	89	73	900
120	2	1552	1300	[gi1407881]	stringent response-like protein (Streptococcus equisimilis)	89	79	2253
122	5	4512	2791	[gnlP10]e280490	unknown (Streptococcus pneumoniae)	89	81	1722

**TABLE 2**  
*S. pneumoniae* - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
176	1	669	4	[gi 47394	5-oxoprolyl-peptidase (Streptococcus pyogenes)	89	78	666
177	6	3050	3534	[gi 912423	putative (Lactococcus lactis)	89	71	885
181	8	4033	5751	[gi 149411	enzyme III (Lactococcus lactis)	89	80	1719
211	4	3149	2793	[gi 535273	aminopeptidase C (Streptococcus thermophilus)	89	83	357
361	1	431	838	[gi 1196922	unknown protein (insertion sequence IS861)	89	70	408
34	17	11839	10535	[sp P30053 SVH_S	HISTIDYL-TRNA SYNTHETASE (EC 6.1.1.21) (HISTIDINE--TRNA LIGASE) (HISRS)	88	78	1305
38	3	1646	2623	[gi 2058544	putative ABC transporter subunit ComYA (Streptococcus gordonii)	88	78	978
54	1	3	227	[gnl P10 dl01370	Yqgu (Bacillus subtilis)	88	66	225
57	2	611	1468	[gnl P10 el34943	putative reductase I (Saccharomyces cerevisiae)	88	75	858
65	13	5497	6069	[pir A29102 K58S	ribosomal protein L5 - Bacillus stearothermophilus	88	75	573
65	20	9030	9500	[gi 2078381	ribosomal protein L15 (Staphylococcus aureus)	88	83	471
78	3	3636	1108	[gnl P10 dl00781	lysyl-aminopeptidase (Lactococcus lactis)	88	80	2529
106	12	12965	12054	[gi 2407215	(AF017421) putative heat shock protein HtpX (Streptococcus gordonii)	88	72	912
107	2	219	962	[gnl P10 el39862	putative acylneuraminase lyase (Clostridium tertium)	88	75	744
111	8	134073	10420	[gi 402363	RNA polymerase beta-subunit (Bacillus subtilis)	88	74	3654
126	9	13096	12062	[gnl P10 el311468	unknown (Bacillus subtilis)	88	74	1035
140	17	19143	18874	[gi 1573659	H. influenzae predicted coding region H10659 (Haemophilus influenzae)	88	61	270
144	1	394	555	[gnl P10 el274705	lactate oxidase (Streptococcus infant)	88	75	162
148	4	2723	3493	[gi 1591672	phosphate transport system ATP-binding protein (Methanococcus jannaschii)	88	68	771
160	8	5853	6278	[gi 1773267	ATPase, epsilon subunit (Streptococcus mutans)	88	65	426
177	4	1770	2885	[gi 149426	putative (Lactococcus lactis)	88	72	1116
211	6	4140	3613	[gi 1535273	aminopeptidase C (Streptococcus thermophilus)	88	74	528
231	4	580	957	[gi 40186	homologous to E. coli ribosomal protein L27 (Bacillus subtilis)	88	70	378
260	5	2387	2998	[gi 1196922	unknown protein (insertion sequence IS861)	88	69	612
291	6	2017	3375	[gnl P10 dl00571	adenylosuccinate synthetase (Bacillus subtilis)	88	75	1359
319	4	658	317	[gi 603578	serine/threonine kinase (Phycophthora capsici)	88	88	362
319	5	4353	4514	[gi 153672	lactase repressor (Streptococcus mutans)	87	56	162



TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
49	110	10660	10929	gi 1196921	unknown protein (insertion sequence IS861)	87	72	270
65	7	3140	3808	gi 1165109	S3 [Bacillus subtilis]	87	73	669
65	15	6623	7039	gi 1044978	ribosomal protein S8 [Bacillus subtilis]	87	73	417
75	8	5811	6625	gi 1877422	galactokinase [Streptococcus mutans]	87	78	1215
80	2	703	2805	gnl PID d101166	elongation factor G [Bacillus subtilis]	87	76	2103
82	1	541	248	gi 1196921	unknown protein (insertion sequence IS861)	87	69	294
140	23	25033	23897	gnl PID e254999	phenylalanyl-tRNA synthetase beta subunit [Bacillus subtilis]	87	74	1137
214	114	10441	8516	gi 2281305	glucose inhibited division protein homolog GIDA [Lactococcus lactis cremoris]	87	75	1926
220	2	2742	874	gnl PID e324358	product highly similar to elongation factor EF-G [Bacillus subtilis]	87	73	1869
260	4	2096	2389	gi 1196921	unknown protein (insertion sequence IS861)	87	72	294
323	1	27	650	gi 897795	30S ribosomal protein (pediococcus acidilactici)	87	73	624
357	1	154	570	gi 1044978	ribosomal protein S8 [Bacillus subtilis]	87	73	417
49	11	10927	11445	gi 1196922	unknown protein (insertion sequence IS861)	86	63	519
59	12	7461	9224	gi 1951051	relaxase [Streptococcus pneumoniae]	86	68	1764
65	4	1553	2401	pit A02759 J5B5	ribosomal protein L2 - Bacillus stearothermophilus	86	77	849
65	23	10957	11610	gi 144074	adenylate kinase [Lactococcus lactis]	86	76	654
82	4	4374	4856	gi 153745	mannitol-specific enzyme III [Streptococcus mutans]	86	72	483
102	4	4270	4986	gnl PID e264705	OMP decarboxylase [Lactococcus lactis]	86	76	717
106	6	7824	6880	gnl PID e137598	aspartate transcarbamylase [Lactobacillus leichmannii]	86	68	945
107	1	1	273	gnl PID e339862	putative acylneuraminate lyase [Clostridium tertium]	86	71	273
111	7	10432	6710	gnl PID e228283	DNA-dependent RNA polymerase [Streptococcus pyogenes]	86	80	3723
131	9	5704	4892	gi 1661193	polipoprotein diacylglycerol transferase [Streptococcus mutans]	86	71	813
134	7	6430	7980	gi 2388637	glycerol kinase [Enterococcus faecalis]	86	73	1551
146	11	7473	6583	gi 1591731	acetylglutamate kinase [Methanococcus jannaschii]	86	72	891
153	2	595	2010	gi 2160707	dipeptidase [Lactococcus lactis]	86	78	1416
154	1	2	1435	gi 1857246	6-phosphogluconate dehydrogenase [Lactococcus lactis]	86	74	1434

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
161	5	5025	6284	gi 47529	Unknown (Streptococcus salivarius)	86	66	1260
184	1	2	1483	gi 642667	NADP-dependent glyceraldehyde-3-phosphate dehydrogenase (Streptococcus mutans)	86	73	1482
210	8	1659	6571	gi 151661	translational initiation factor IF2 (Enterococcus faecium)	86	76	2913
250	1	2	187	gi 1573551	asparagine synthetase A (asaA) (Haemophilus influenzae)	86	68	186
36	4	2644	3909	gi 2149909	cell division protein (Enterococcus faecalis)	85	73	1266
38	4	2475	3587	gi 2058545	putative ABC transporter subunit ComVB (Streptococcus gordonii)	85	72	1113
38	5	3577	3915	gi 2058546	ComYC (Streptococcus gordonii)	85	80	339
57	5	2797	3789	gnl PID101316	YqfJ (Bacillus subtilis)	85	72	993
82	5	4915	6054	gi 153746	mannitol-phosphate dehydrogenase (Streptococcus mutans)	85	68	1140
83	15	14690	15793	gi 143371	phosphoribosyl aminoimidazole synthetase (PUR-M) (Bacillus subtilis)	85	69	1104
87	2	1417	2188	gi 1184967	ScrR (Streptococcus mutans)	85	69	972
108	3	2666	3154	gi 153566	ORF (19K protein) (Enterococcus faecalis)	85	67	489
127	2	312	692	gi 1044989	ribosomal protein S13 (Bacillus subtilis)	85	72	381
128	3	1534	2409	gi 1685110	tetrahydrofolate dehydrogenase/cyclohydrolase (Streptococcus thermophilus)	85	71	876
137	7	2962	4767	gnl PIN100347	Na <sup>+</sup> ATPase alpha subunit (Enterococcus hirae)	85	74	1806
170	2	2622	709	gnl PID102006	FUNCTION UNKNOWN, SIMILAR PRODUCT IN E. COLI, H. INFLUENZAE AND NEISSERIA MENINGITIDIS. (Bacillus subtilis)	85	70	1914
187	5	3760	4386	gi 727436	putative 20-kDa protein (Lactococcus lactis)	85	65	627
233	2	728	1873	gi 1163116	ORF-5 (Streptococcus pneumoniae)	85	67	1146
234	3	962	1255	gi 2293155	[AF008220] Y1A (Bacillus subtilis)	85	61	294
240	1	309	1931	gi 143597	CTP synthetase (Bacillus subtilis)	85	70	1623
6	1	199	1521	gi 508979	GTP-binding protein (Bacillus subtilis)	84	72	1323
10	4	4375	3443	gnl PID139862	putative acylneuraminate lyase (Clostridium tertium)	84	70	933
14	1	63	2093	gi 520753	DNA topoisomerase I (Bacillus subtilis)	84	69	2031
19	4	1793	2593	gi 2152484	[AF005098] RNASEH II (Lactococcus lactis)	84	68	801
20	17	11720	19687	gnl PID100584	cell division protein (Bacillus subtilis)	84	71	1968
22	28	21723	20884	gi 299163	alanine dehydrogenase (Bacillus subtilis)	84	68	840

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
10	10	7730	6792	[gnl pid d100296]	[fructokinase (Streptococcus mutans)]	84	75	939
33	9	5650	5300	[gi 147194]	[phnA protein (Escherichia coli)]	84	71	351
36	22	12151	20772	[gi 310631]	[ATP binding protein (Streptococcus gordonii)]	84	72	780
48	4	2817	2505	[gi 882609]	[6-phospho-beta-glucosidase (Escherichia coli)]	84	69	333
58	1	41	1516	[gi 450849]	[amylase (Streptococcus bovis)]	84	73	1476
59	10	6715	7116	[gi 951053]	[ORF10, putative (Streptococcus pneumoniae)]	84	74	402
62	1	21	644	[gi 806487]	[ORF211; putative (Lactococcus lactis)]	84	66	624
65	17	7779	8207	[gi 1044980]	[ribosomal protein L18 (Bacillus subtilis)]	84	73	429
65	21	9507	10397	[gi 43073]	[SecY protein (Lactococcus lactis)]	84	68	891
106	4	5474	2262	[gnl pid d199187]	[carbamoyl-phosphate synthase (Lactobacillus plantarum)]	84	73	3213
159	1	147	4	[gi 806487]	[ORF211; putative (Lactococcus lactis)]	84	63	144
163	4	4690	5910	[gi 2293164]	[AF008220] SAM synthase (Bacillus subtilis)]	84	69	1221
192	1	46	1308	[gi 495046]	[tripeptidase (Lactococcus lactis)]	84	73	1263
348	1	671	6	[gi 1787753]	[AE000245] (346; 79 pct identical to 336 amino acids of ADH1 2YMO SM: P20368 but has 10 additional water residues (Escherichia coli)]	84	71	666
3	4	1572	3575	[gi 143766]	[(thrSv) (EC 6.1.1.3) (Bacillus subtilis)]	83	65	2004
9	6	3893	3417	[gnl pid d100576]	[single strand DNA binding protein (Bacillus subtilis)]	83	68	477
17	15	7426	8457	[gi 520738]	[comA protein (Streptococcus pneumoniae)]	83	66	1032
20	12	13860	14144	[gnl pid d100583]	[unknown (Bacillus subtilis)]	83	61	285
23	4	3358	2606	[gi 1788294]	[AE000290] (238; This 238 aa orf is 40 pct identical (5 gaps) to 231 residues of an approx. 248 aa protein Y8AC_ECOLI SM: P24237 (Escherichia coli)]	83	74	753
28	6	3304	3005	[gi 1573659]	[H1 influenzae predicted coding region H10659 (Haemophilus influenzae)]	83	57	300
35	7	5108	3867	[gi 311707]	[hypothetical nucleotide binding protein (Acholeplasma laidlawii)]	83	63	1242
55	19	17932	17528	[gi 537085]	[ORF_114] (Escherichia coli)]	83	59	405
55	20	18539	17919	[gi 496558]	[orfX (Bacillus subtilis)]	83	69	621
65	6	2795	3142	[gi 1165308]	[L22 (Bacillus subtilis)]	83	64	348
68	6	6877	6683	[gi 1213494]	[immunoglobulin A1 protease (Streptococcus pneumoniae)]	83	54	195

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
87	15	115112	14771	gnl pid d101190	putative rpo2 protein (Bacillus subtilis)	83	54	342
96	12	8963	9631	gi 47394	[5-oxopropyl]-peptidase (Streptococcus pyogenes)	83	73	669
98	1	3	263	gi 1183885	glutamine-binding subunit (Bacillus subtilis)	83	55	261
120	4	7170	5233	gi 110630	zinc metalloprotease (Streptococcus gordonii)	83	72	1938
127	7	2998	4347	gi 1500567	M. Jannaschii predicted coding region (J1665 (Methanococcus jannaschii))	83	72	1350
137	1	3	440	gi 472918	[v-type Na-ATPase (Enterococcus hirae)	83	60	438
160	6	3466	4356	gi 1773265	ATPase, gamma subunit (Streptococcus mutans)	83	67	891
214	4	2278	2964	gi 663279	transposase (Streptococcus pneumoniae)	83	72	687
226	3	2367	2020	gi 142154	thioredoxin (Synecococcus PCC6301)	83	58	348
301	1	3	1049	gi 40046	phosphoglucose isomerase A (AA 1-469) (Bacillus stearothermophilus)	83	67	1047
303	2	1155	1931	gi 289282	glutaryl-tRNA synthetase (Bacillus subtilis)	83	67	777
6	17	15370	14318	gi 633147	ribose-phosphate pyrophosphokinase (Bacillus caldolyticus)	82	64	1053
7	1	299	96	gi 143648	ribosomal protein L28 (Bacillus subtilis)	82	69	204
9	3	1479	1090	gi 385178	unknown (Bacillus subtilis)	82	46	390
9	7	4213	3899	gnl pid d100576	ribosomal protein S6 (Bacillus subtilis)	82	60	315
12	6	4688	3942	gnl pid d100571	unknown (Bacillus subtilis)	82	68	747
22	17	13422	14837	gi 520754	putative (Bacillus subtilis)	82	69	1416
22	18	14897	15658	gnl pid d101929	uridine monophosphate kinase (Synecocystis sp.)	82	62	762
33	16	11471	10681	gnl pid d101190	ORF4 (Streptococcus mutans)	82	68	831
35	9	7400	6255	gi 1881543	UDP-N-acetylglucosamine-2-epimerase (Streptococcus pneumoniae)	82	68	1146
40	10	8003	7533	gi 1173519	riboflavin synthase beta subunit (Actinobacillus pleuropneumoniae)	82	68	471
48	32	23159	23437	gi 1930092	outer membrane protein (Campylobacter jejuni)	82	61	279
52	14	13833	14765	gi 142521	deoxyribodipyrimidine photolyase (Bacillus subtilis)	82	61	933
60	4	4737	1849	gnl pid d101221	(AB001810) uvrA (Deinococcus radiodurans)	82	66	2889
62	4	2131	1457	gi 2246749	(AF009622) thioredoxin reductase (Listeria monocytogenes)	82	63	675
71	11	16586	17518	gnl pid d102206	as-1,4-galactosyltransferase (Streptococcus pneumoniae)	82	60	933
73	11	9222	7837	gnl pid d100586	unknown (Bacillus subtilis)	82	65	1386

TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
74	1	1	3771	gnl p10 d101199	alkaline amylopullulanase [Bacillus sp.]	82	68	3771
81	9	3696	3983	gnl p10 e305362	unnamed protein product [Streptococcus thermophilus]	82	52	288
86	11	110776	9194	gi 683583	5-enolpyruvylshikimate-3-phosphate synthase [Lactococcus lactis]	82	67	1383
89	12	8295	9752	gi 40025	homologous to E. coli 50K [Bacillus subtilis]	82	66	1458
115	9	10347	8812	gnl p10 d102090	(AB003927) phospho-beta-galactosidase 1 [Lactobacillus gasseri]	82	74	1536
118	1	1	1332	gnl p10 d100579	seryl-tRNA synthetase [Bacillus subtilis]	82	71	1332
151	1	4657	6246	pir S06097 S060	type 1 site-specific deoxyribonuclease (EC 3.1.21.3) CtrA chain S - Citrobacter freundii	82	66	1590
173	6	4183	3503	gi 2313836	(AE000584) conserved hypothetical protein [Helicobacter pylori]	82	68	681
177	12	5481	7442	gnl p10 d101999	(AB001341) NcrB [Escherichia coli]	82	58	1962
193	2	178	576	pir S08564 R3BS	ribosomal protein S9 - Bacillus stearothermophilus	82	70	399
245	2	258	845	gi 146402	EcoA type 1 restriction-modification enzyme S subunit [Escherichia coli]	82	68	588
9	5	3400	3146	gnl p10 d100576	ribosomal protein S18 [Bacillus subtilis]	81	66	255
16	7	7484	8413	gi 1100074	trypophenyl-tRNA synthetase [Clostridium longisporum]	81	70	930
20	11	10308	13820	gnl p10 d100583	transcription-repair coupling factor [Bacillus subtilis]	81	63	3513
38	2	1232	1606	gi 2058543	putative DNA binding protein [Streptococcus gordonii]	81	63	375
45	2	3081	1751	gi 460259	enolase [Bacillus subtilis]	81	67	1311
46	1	2	1267	gi 431231	uracil permease [Bacillus caldolyticus]	81	61	1266
48	3	2453	1440	gnl p10 d100453	Mannosephosphate isomerase [Streptococcus mutans]	81	70	1014
54	2	1106	336	gi 154752	transport protein [Agrobacterium tumefaciens]	81	64	771
65	22	10306	10821	gi 44073	SecY protein [Lactococcus lactis]	81	66	516
89	4	3874	2603	gi 556886	serine hydromethyltransferase [Bacillus subtilis]	81	69	1272
99	16	19126	18929	gi 2313526	(AE000557) H. pylori predicted coding region HP0411 [Helicobacter pylori]	81	75	198
106	7	8373	7822	gnl p10 e199384	pyrK [Lactobacillus plantarum]	81	61	552
108	6	5054	6877	gi 1669939	group B oligopeptidase PepB [Streptococcus agalactiae]	81	66	1824
113	15	15899	18283	pir S09411 S094	spolIIE protein - Bacillus subtilis	81	65	2385
128	5	3359	1634	gi 1685111	orf1091 [Streptococcus thermophilus]	81	69	276

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	CRF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
151	1	830	3211	gi 304896	ecoE type I restriction-modification enzyme R subunit [Escherichia coli]	81	59	2382
159	11	6722	7837	gi 2239288	GMP synthetase [Bacillus subtilis]	81	69	1116
170	1	739	458	gnl PID102006	FUNCTION UNKNOWN. [Bacillus subtilis]	81	55	282
191	2	1759	893	gi 149522	cryptophan synthase alpha subunit [Lactococcus lactis]	81	65	867
214	3	2290	1594	gi 157587	reverse transcriptase endonuclease [Drosophila virilis]	81	43	297
217	4	4415	4008	gi 466473	cellobiose phosphotransferase enzyme II' [Bacillus stearothermophilus]	81	59	408
262	2	569	868	gi 153675	Lagatose 6-P kinase [Streptococcus mutans]	81	68	300
299	1	663	4	gnl PID1030154	StySKI methylase [Salmonella enterica]	81	60	660
366	2	376	83	gi 149521	cryptophan synthase beta subunit [Lactococcus lactis]	81	65	294
32	10	8766	9242	gi 1216490	DNA/pantothenate metabolism flavoprotein [Streptococcus mutans]	80	64	477
17	11	6050	5748	gnl PID10305362	unnamed protein product [Streptococcus thermophilus]	80	67	303
17	16	8455	9066	gi 703126	leucocin A translocator [Leuconostoc gelidum]	80	59	612
18	1	2440	1613	gi 1591672	phosphate transport system ATP-binding protein [Methanococcus jannaschii]	80	58	828
27	3	4248	1579	gi 452309	valyl-tRNA synthetase [Bacillus subtilis]	80	69	2670
28	7	3671	3288	gi 1573660	H. influenzae predicted coding region H10660 [Haemophilus influenzae]	80	63	384
32	2	902	1933	gnl PID10264499	dihydroorotate dehydrogenase B [Lactococcus lactis]	80	66	1032
19	1	1	1266	gnl PID10234078	hom [Lactococcus lactis]	80	63	1266
52	5	4363	3593	gi 1183884	ATP-binding subunit [Bacillus subtilis]	80	57	771
54	5	4550	4744	gi 2198820	[AF004225] Cux/CDP1181; Cux/COP homeoprotein [Mus musculus]	80	60	195
59	11	7109	7486	gi 951052	ORF9, putative [Streptococcus pneumoniae]	80	68	378
65	3	1230	1550	pir A02815 RS8S	[ribosomal] protein L23 - Bacillus stearothermophilus	80	69	321
65	12	5174	5503	pir A02819 RS8S	[ribosomal] protein L24 - Bacillus stearothermophilus	80	70	330
66	9	9884	10687	gi 2311836	[AE000584] conserved hypothetical protein [Helicobacter pylori]	80	66	804
82	2	648	2438	gi 1622991	mannotol transport protein [Bacillus stearothermophilus]	80	65	1791
85	1	950	630	gi 528995	polyketide synthase [Bacillus subtilis]	80	46	321
89	8	6810	5779	gi 1853776	peptide chain release factor 1 [Bacillus subtilis]	80	63	1092
93	12	8718	7438	gnl PID101959	hypothetical protein [Synechocystis sp.]	80	60	1281

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
106	5	6854	5751	[gnl PID e199106]	glutaminase of carbamoyl-phosphate synthase [Lactobacillus plantarum]	80	65	1104
109	2	2160	1450	[gi 40036]	phoP gene product [Bacillus subtilis]	80	59	711
124	9	4246	3953	[gnl PID d102254]	30S ribosomal protein S16 [Bacillus subtilis]	80	65	294
128	8	5148	6428	[gi 2281308]	phosphoenolpyruvate carboxylase [Lactococcus lactis cremoris]	80	66	1281
137	19	12665	11376	[gi 159109]	NADP-dependent glutamate dehydrogenase [Giardia intestinalis]	80	68	1290
140	19	119699	119457	[gi 517210]	putative transposase [Streptococcus pyogenes]	80	70	243
158	2	2474	984	[gi 18077423]	galactose-1-P-uridylyl transferase [Streptococcus mutans]	80	65	1491
171	10	7474	7728	[gi 197800]	cyclophilin C-associated protein [Mus musculus]	80	60	255
181	1	2	619	[gi 149395]	lacC [Lactococcus lactis]	80	66	618
313	1	27	539	[gi 143467]	ribosomal protein S4 [Bacillus subtilis]	80	70	513
329	2	1652	858	[gi 533080]	RecF protein [Streptococcus pyogenes]	80	63	795
331	1	2	958	[gi 442360]	ClpC adenosine triphosphatase [Bacillus subtilis]	80	58	957
8	7	4312	5580	[gi 149435]	putative [Lactococcus lactis]	79	64	1269
23	1	1175	135	[gi 1542975]	AbcB [Thermotoga bacterium thermophilum]	79	61	1041
33	14	9244	8201	[gnl PID e253891]	UDP-glucose 4-epimerase [Bacillus subtilis]	79	62	1044
36	3	1242	2633	[gnl PID e324218]	ftsA [Enterococcus hirae]	79	58	1392
38	13	7155	8378	[gi 405134]	acetate kinase [Bacillus subtilis]	79	58	1224
55	7	9011	8229	[gi 1146234]	dihydrodipicolinate reductase [Bacillus subtilis]	79	56	783
65	19	8661	8915	[gi 2078380]	ribosomal protein L30 [Staphylococcus aureus]	79	68	255
69	4	3678	2128	[gnl PID e311452]	unknown [Bacillus subtilis]	79	64	1551
69	9	7881	7279	[gi 677850]	hypothetical protein [Staphylococcus aureus]	79	59	603
72	10	8491	9783	[gnl PID d101091]	hypothetical protein [Synecocystis sp.]	79	62	1293
80	3	2906	7300	[gi 143342]	polymerase III [Bacillus subtilis]	79	65	4395
82	14	13326	15689	[gnl PID e25509]	hypothetical protein [Bacillus subtilis]	79	65	2364
86	13	12233	11118	[gi 683582]	prephenate dehydrogenase [Lactococcus lactis]	79	58	1116
92	3	940	1314	[gi 533286]	triosephosphate isomerase [Lactococcus lactis]	79	65	795
98	6	4023	4742	[gnl PID d100762]	LivG protein [Salmonella typhimurium]	79	63	720

TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
99	12	16315	14150	gi153736	α-galactosidase [Streptococcus mutans]	79	64	2166
107	7	5684	6406	gi1460080	D-alanine-D-alanine ligase-related protein [Enterococcus faecalis]	79	58	723
113	9	6858	8303	gi1466882	[ppa]; B1496_C2.189 [Mycobacterium leprae]	79	64	1446
151	10	13424	12213	gi1450686	β-phosphoglycerate kinase [Thermotoga maritima]	79	60	1212
162	2	1158	3017	gi1506700	CapD [Staphylococcus aureus]	79	67	1860
177	5	2876	3052	gi1912423	[putative] [Lactococcus lactis]	79	61	177
177	8	4198	4561	gi1149429	[putative] [Lactococcus lactis]	79	61	366
187	3	2728	2907	gnl P1D d102002	[AB001488] FUNCTION UNKNOWN. [Bacillus subtilis]	79	53	180
189	7	3589	4350	gnl P1N e183449	[putative ATP-binding protein of ABC-type [Bacillus subtilis]	79	61	762
191	5	4249	3449	gi1149519	[indoleglycerol phosphate synthase [Lactococcus lactis]	79	66	801
211	3	1805	2737	gi1147404	[mannose permease subunit II-N-Han [Escherichia coli]	79	57	933
212	3	3863	3621	gnl P1D e209004	[glutaredoxin-like protein [Lactococcus lactis]	79	58	243
215	1	987	715	gi12293242	[AF008220] arginine succinate synthase [Bacillus subtilis]	79	64	273
323	2	510	781	gi1897795	[30S ribosomal protein [Pedococcus acidilactici]	79	67	252
380	1	694	2	gi11184680	[polynucleotide phosphorylase [Bacillus subtilis]	79	64	693
384	2	655	239	gi1143328	[phop protein (put.) ; putative [Bacillus subtilis]	79	59	417
6	3	2820	4091	gi1853767	[UDP-N-acetylglucosamine 1-carboxyvinyltransferase [Bacillus subtilis]	78	62	1272
8	1	50	1786	gi1149432	[putative [Lactococcus lactis]	78	63	1737
9	1	351	124	gi1897793	[y98 gene product [Pedococcus acidilactici]	78	59	228
15	8	7364	8314	gnl P1D d100585	[cysteine synthetase A [Bacillus subtilis]	78	63	951
20	10	9738	10310	gnl P1D d100581	[stage V sporulation [Bacillus subtilis]	78	58	573
20	16	17165	17713	gi149105	[hypoxanthine phosphoribosyltransferase [Lactococcus lactis]	78	59	549
22	22	17388	18416	gnl P1D d101315	[yqfE [Bacillus subtilis]	78	60	1029
22	27	20971	20612	gi1299163	[alanine dehydrogenase [Bacillus subtilis]	78	59	360
34	8	7407	7105	gi141015	[aspartate-tRNA ligase [Escherichia coli]	78	55	303
35	8	6257	5196	gi11657644	[Cap8E [Staphylococcus aureus]	78	60	1062



TABLE 2  
S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
40	11	9287	8001	gi11173518	GTP cyclohydrolase II/ J 4-dihydroxy 2-butanone-4-phosphate synthase (Actinobacillus pleuropneumoniae)	78	58	1287
48	31	22422	23183	gi12314330	[AE000623] glutamine ABC transporter, ATP-binding protein (glnQ) (Helicobacter pylori)	78	58	762
52	2	2101	1430	gi11183887	integral membrane protein (Bacillus subtilis)	78	54	672
55	14	13605	12712	gn1PID102026	[AB002150] YbbP (Bacillus subtilis)	78	58	894
55	17	16637	15612	gn1PIDe313027	hypothetical protein (Bacillus subtilis)	78	51	1026
71	14	19756	19598	gi1179764	calcium channel alpha-1D subunit (Homo sapiens)	78	57	159
74	11	15031	14018	gi11573279	Holliday junction DNA helicase (ruvB) (Haemophilus influenzae)	78	57	1014
75	9	6623	7972	gi11877423	galactose-1-P-uridylyl transferase (Streptococcus mutans)	78	62	1350
81	12	12125	11306	gi11573607	beta-fucose isomerase (fucII) (Haemophilus influenzae)	78	66	1782
82	3	2423	4417	gi1153744	[ORF X; putative (Streptococcus mutans)]	78	64	1995
83	18	16926	18500	gi1143373	[phosphoribosyl aminimidazole carboxy formyl formyltransferase/inosine monophosphate cyclohydrolase (pur-HIJ)] (Bacillus subtilis)	78	63	1575
83	20	20212	20775	gi1143364	[phosphoribosyl aminimidazole carboxylase I (pur-E)] (Bacillus subtilis)	78	64	564
92	2	165	878	gn1PID101190	[ORF2 (Streptococcus mutans)]	78	62	714
98	8	5863	6909	gi12331287	[AF013188] release factor 2 (Bacillus subtilis)	78	63	1047
113	3	1071	2741	gi1580914	dnaX (Bacillus subtilis)	78	64	1671
127	4	1133	2071	gi1142463	[RNA polymerase alpha-core subunit (Bacillus subtilis)]	78	59	939
132	1	2782	497	gi11561763	[pullulanase (Bacteroides thetaiotaomicron)]	78	58	2286
135	4	2698	3537	gi11788036	[AE000269] NH3-dependent NAD synthetase (Escherichia coli)	78	66	840
140	24	26853	25423	gi11100077	[phospho-beta-glucosidase (Clostridium longisporum)]	78	64	1431
150	5	4690	4514	gi1149464	[amino peptidase (Lactococcus lactis)]	78	42	177
152	1	1	795	gi1639915	[NADH dehydrogenase subunit (Thunbergia alata)]	78	43	795
182	4	4997	4110	gn1PIDe123528	[putative YhaP protein (Bacillus subtilis)]	78	64	888
181	10	8651	7947	gi1149402	[lactose repressor (lact; alt.) (Lactococcus lactis)]	78	48	705
200	4	3627	4958	gn1PID100172	[invertase (Zymomonas mobilis)]	78	61	1332
203	3	3230	3015	gi11174237	[Cyck (Pseudomonas fluorescens)]	78	57	216

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
210	9	6789	7172	gi 580902	ORF6 gene product (Bacillus subtilis)	78	42	384
214	6	7810	2797	gnl PID d102049	P. haemolytica o-sialoglycoprotein endopeptidase; P36175 (660) transmembrane (Bacillus subtilis)	78	60	1014
214	13	6322	8163	gi 1377831	unknown (Bacillus subtilis)	78	62	1842
217	1	9	2717	gi 488430	alcohol dehydrogenase 2 (Entamoeba histolytica)	78	64	2709
222	3	2316	3098	gi 1573047	spore germination and vegetative growth protein (gerC2) (Haemophilus influenzae)	78	65	783
268	1	742	8	gi 517210	putative transposase (Streptococcus pyogenes)	78	65	735
276	1	223	753	gnl PID d100306	ribosomal protein L1 (Bacillus subtilis)	78	65	531
312	3	1567	1079	gi 289261	comE ORF2 (Bacillus subtilis)	78	54	489
319	1	117	794	gi 1916729	CadD (Staphylococcus aureus)	78	53	678
342	2	762	265	gi 1842419	phosphatidylglycerophosphate synthase (Bacillus subtilis)	78	59	498
383	1	737	3	gi 1184680	polynucleotide phosphorylase (Bacillus subtilis)	78	64	735
7	15	11921	11018	gi 139885	carboxyltransferase beta subunit (Synchococcus PCC7942)	77	63	906
8	2	1698	2255	gi 149433	putative (Lactococcus lactis)	77	59	558
17	14	6948	7550	gi 520738	comA protein (Streptococcus pneumoniae)	77	60	603
30	12	9761	8967	gi 1000451	TreP (Bacillus subtilis)	77	43	795
36	14	11421	12131	gi 1573766	phosphoglyceronate (gpmA) (Haemophilus influenzae)	77	64	711
55	3	1836	4096	gi 1708640	YeaB (Bacillus subtilis)	77	55	261
61	8	8377	8054	gi 1890649	multidrug resistance protein LmrA (Lactococcus lactis)	77	51	324
65	2	607	1254	gi 40103	ribosomal protein L4 (Bacillus stearothermophilus)	77	63	648
68	8	7509	7240	gi 47551	MRP (Streptococcus sulci)	77	68	270
69	1	1083	118	gnl PID e311493	unknown (Bacillus subtilis)	77	57	966
77	5	4583	4026	gnl PID e281578	hypothetical 12.2 kd protein (Bacillus subtilis)	77	60	558
83	14	13104	14552	gi 1590947	amidophosphoribosyltransferase (Methanococcus jannaschii)	77	56	1449
94	4	3006	5444	gnl PID e329895	(AJ000496) cyclic nucleotide-gated channel beta subunit (Rattus norvegicus)	77	66	2439
96	11	8518	8880	gi 551879	ORF 1 (Lactococcus lactis)	77	62	363
99	11	14082	12799	gi 153737	sugar-binding protein (Streptococcus mutans)	77	61	1284

TABLE 2  
S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
106	2	361	1176	gi 148921	LlCD protein (Haemophilus influenzae)	77	51	816
108	4	3152	4030	gi 1574730	cellulose resistance protein (tcbB) (Haemophilus influenzae)	77	58	879
118	4	3520	3131	gi 1573900	D-alanine permease (dapA) (Haemophilus influenzae)	77	57	390
124	4	1796	1071	gi 1573162	tRNA (guanine-N1)-methyltransferase (trmD) (Haemophilus influenzae)	77	58	726
126	4	5909	4614	gnl pid d101163	Srb (Bacillus subtilis)	77	62	1296
128	2	630	1373	gnl pid d101328	Yqj2 (Bacillus subtilis)	77	58	744
130	1	1	1287	gnl pid e325013	hypothetical protein (Bacillus subtilis)	77	61	1287
139	5	4388	3639	gi 2293302	(AF008220) YlcA (Bacillus subtilis)	77	59	750
140	11	110931	9582	gi 289284	cysteinyI-tRNA synthetase (Bacillus subtilis)	77	64	1350
140	18	19451	19263	gi 517210	putative transposase (Streptococcus pyogenes)	77	66	189
141	2	976	1683	gnl pid e157887	URF5 (aa 1-573) (Drosophila yakuba)	77	50	708
141	4	2735	5293	gi 556258	baeA (Listeria monocytogenes)	77	59	2539
144	2	671	2173	gnl pid d100585	lyxyl-tRNA synthetase (Bacillus subtilis)	77	61	1503
163	5	6412	7398	gi 511015	dihydroorotate dehydrogenase A (Lactococcus lactis)	77	62	987
164	10	7841	7074	gnl pid d100964	homologue of iron dicitrate transport ATP-binding protein FecE of E. coli (Bacillus subtilis)	77	52	768
191	8	7257	5791	gi 149516	anthranilate synthase alpha subunit (Lactococcus lactis)	77	57	1467
198	8	5377	5177	gi 1573856	hypothetical (Haemophilus influenzae)	77	66	203
213	1	202	462	gi 1743860	BcrA2 (Mus musculus)	77	50	261
250	2	231	509	gnl pid e334776	VlBW protein (Bacillus subtilis)	77	60	279
289	3	1737	1276	gnl pid d100947	Ribosomal Protein L10 (Bacillus subtilis)	77	62	462
292	2	1399	668	gi 143004	transfer RNA-Gln synthetase (Bacillus stearothermophilus)	77	58	732
7	1	2714	1166	gnl pid d101824	peptide-chain-release factor 3 (Synchocystis sp.)	76	53	1569
7	23	18474	18235	gi 455157	acyl carrier protein (Cryptomonas phil)	76	57	240
9	8	5706	4362	gi 1146267	asparaginyl-tRNA synthetase (Bacillus subtilis)	76	61	1365
10	5	4531	4385	gnl pid e314495	hypothetical protein (Clostridium perfringens)	76	53	147
18	2	1615	842	gi 1591672	phosphate transport system ATP-binding protein (Methanococcus jannaschii)	76	56	774

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
22	37	2796	28173	gnl PID e13389	translation initiation factor IF1 (AA 1-172) [Bacillus stearothermophilus]	76	64	378
35	6	3869	2682	gi 1773346	Cap5G [Staphylococcus aureus]	76	61	1188
48	28	21113	21787	gi 2314328	[AE000623] glutamine ABC transporter, permease protein (glnP) [Helicobacter pylori]	76	52	675
52	12	12881	13786	gi 142521	deoxyribodipyrimidine photolyase [Bacillus subtilis]	76	58	906
55	10	11521	10571	gnl PID e283110	femD [Staphylococcus aureus]	76	61	951
57	8	7824	6559	gi 290561	ol88 [Escherichia coli]	76	47	1266
62	5	2406	2095	gnl PID e313024	hypothetical protein [Bacillus subtilis]	76	59	312
65	9	4223	4441	gi 40148	[L29 protein (AA 1-66) [Bacillus subtilis]	76	58	219
68	2	1328	2371	gnl PID e284233	anabolic ornithine carbamoyltransferase [Lactobacillus plantarum]	76	61	1044
69	8	7297	6005	gnl PID d101420	pyrimidine nucleoside phosphorylase [Bacillus stearothermophilus]	76	61	1293
71	12	7819	7267	gnl PID e243629	unknown [Mycobacterium tuberculosis]	76	53	573
74	5	8433	7039	gnl PID d102048	[C. thermocellum beta-glucosidase; P26208 1985] [Bacillus subtilis]	76	60	1395
80	5	7643	7916	gi 2314010	[AE000599] conserved hypothetical protein [Helicobacter pylori]	76	61	294
82	15	16019	16996	gi 1573900	[O-alanine permease (dagA) [Haemophilus influenzae]	76	56	978
83	19	18616	19884	gnl 143374	[phosphoribosyl glycineamide synthetase (PUR-D; gta start codon) [Bacillus subtilis]	76	60	1269
86	14	13409	12231	gi 143806	[AroF [Bacillus subtilis]	76	58	1179
87	1	3	1442	gi 153804	[sucrose-6-phosphate hydrolase [Streptococcus mutans]	76	59	1440
87	16	15754	15110	gnl PID e323500	putative Cmk protein [Bacillus subtilis]	76	56	645
93	4	1769	1539	gi 1574820	[1,4-alpha-glucan branching enzyme (glgB) [Haemophilus influenzae]	76	46	231
94	1	51	365	gi 144313	[6.0 kD ORF [Plasmid ColE1]	76	73	315
116	2	2151	1678	gi 153841	[pneumococcal surface protein A [Streptococcus pneumoniae]	76	59	474
123	6	3442	5895	gi 1314297	[ClpC ATPase [Listeria monocytogenes]	76	59	2454
126	2	2156	2932	gnl PID d101328	[Yqj2 [Bacillus subtilis]	76	61	777
128	10	6973	7797	gi 944944	[purine nucleoside phosphorylase [Bacillus subtilis]	76	60	825
131	11	6186	5812	gi 1674310	[AE000058] Mycoplasma pneumoniae, MC085 homolog, from M genitalium [Mycoplasma pneumoniae]	76	47	375

TABLE 2  
S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
139	4	3641	3192	gi 2293302	(AF008220) YtqA (Bacillus subtilis)	76	53	450
140	14	14872	12536	gi 1184680	polynucleotide phosphorylase (Bacillus subtilis)	76	62	2337
143	2	2583	3905	gi 143795	transfer RNA-Tyr synthetase (Bacillus subtilis)	76	61	1323
170	6	5095	6114	gnl ptd d100959	ycgQ (Bacillus subtilis)	76	44	1020
180	2	1927	557	gi 40019	ORF 821 (aa 1-821) (Bacillus subtilis)	76	53	1371
191	7	5815	5228	gi 551880	anthranilate synthase beta subunit (Lactococcus lactis)	76	61	588
195	3	3829	2444	gi 2149905	D-glutamic acid adding enzyme (Enterococcus faecalis)	76	60	1386
200	3	1914	3629	gi 431272	lysis protein (Bacillus subtilis)	76	58	1716
201	1	431	207	gi 2208998	dextran glucosidase DaxS (Streptococcus suis)	76	57	225
214	2	1283	2380	gi 663278	transposase (Streptococcus pneumoniae)	76	55	1098
225	1	2338	3413	gi 1552775	ATP-binding protein (Escherichia coli)	76	56	1074
233	1	2	724	gi 1163115	neuraminidase B (Streptococcus pneumoniae)	76	60	723
347	1	523	38	gi 537033	ORF f356 (Escherichia coli)	76	60	486
356	2	842	165	gi 2149905	D-glutamic acid adding enzyme (Enterococcus faecalis)	76	61	678
366	3	734	348	gi 149520	(phosphoribosyl) anthranilate isomerase (Lactococcus lactis)	76	69	387
5	8	12599	11484	gi 1574293	(filabrial) transcription regulation repressor (pilB) (Haemophilus influenzae)	75	61	1116
6	13	12553	11894	gnl ptd d102050	lydH (Bacillus subtilis)	75	51	660
9	10	7282	6062	gi 142538	aspartate aminotransferase (Bacillus sp.)	75	55	1221
10	12	8080	7940	gi 149493	ISCR1 methylase (Lactococcus lactis)	75	56	141
18	5	4266	3301	gnl ptd d101319	YqgH (Bacillus subtilis)	75	52	966
22	4	1838	2728	gi 1373157	orf-X; hypothetical protein; Method: conceptual translation supplied by author (Bacillus subtilis)	75	62	891
30	11	9015	7828	gi 153801	enzyme scr-11 (Streptococcus mutans)	75	64	1188
31	5	2362	2030	gi 2293231	(AF008220) putative thioredoxin (Bacillus subtilis)	75	53	333
32	9	7484	8359	gnl ptd d100560	formamidopyrimidine-DNA glycosylase (Streptococcus mutans)	75	61	876
33	4	1715	1648	gi 413976	lipa 52r gene product (Bacillus subtilis)	75	53	288
33	10	6470	5769	gi 533105	unknown (Bacillus subtilis)	75	56	702

TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
33	12	6878	7183	[gi A00205 FELC]	ferredoxin (4Fe-4S) - Clostridium thermacetium	75	56	306
36	1	181	2	[gi 2088739]	(AF003141) strong similarity to the FABP/P2/CRBP/CRABP family of transporters (Caenorhabditis elegans)	75	43	180
38	22	14510	15379	[gi 1574058]	hypothetical (Haemophilus influenzae)	75	56	870
48	33	23398	24066	[gi 1930092]	outer membrane protein (Campylobacter jejuni)	75	56	669
51	1	2	319	[gi 43985]	nifs-like gene (Lactobacillus delbrueckii)	75	55	318
51	110	8118	11683	[gi 5337192]	CG Site No. 620; alternate gene names hs, hsp, hsr, rms apparent frameshift in GenBank Accession Number X06545 (Escherichia coli)	75	50	3366
54	118	19566	20759	[gi 666069]	orf2 gene product (Lactobacillus leichmannii)	75	58	1194
57	9	8448	7822	[gi 290561]	ori88 (Escherichia coli)	75	50	627
65	14	6072	6356	[gi 606241]	305 ribosomal subunit protein S14 (Escherichia coli)	75	64	285
70	4	3071	2472	[gi 1256617]	adenine phosphoribosyltransferase (Bacillus subtilis)	75	57	600
71	24	30399	29404	[gi 1574390]	CG-dicarboxylate transport protein (Haemophilus influenzae)	75	57	996
73	2	910	455	[gnl PID e249656]	YneT (Bacillus subtilis)	75	57	456
79	1	1810	491	[gi 1146219]	28.2% of identity to the Escherichia coli GTP-binding protein Era; putative (Bacillus subtilis)	75	59	1320
82	6	6360	6536	[gi 1655715]	Bztd (Rhodobacter capsulatus)	75	55	177
83	6	1938	2975	[gnl PID e323529]	putative Plax protein (Bacillus subtilis)	75	56	1038
93	11	7368	5317	[gi 39989]	methionyl-tRNA synthetase (Bacillus stearothermophilus)	75	58	2052
93	13	9409	8699	[gi 3591493]	glutamine transport ATP-binding protein Q (Methanococcus jannaschii)	75	54	711
95	1	1795	47	[gnl PID e323510]	Ylov protein (Bacillus subtilis)	75	57	1749
103	2	362	1186	[gnl PID e266928]	unknown (Mycobacterium tuberculosis)	75	64	825
104	1	691	915	[gi 460026]	repressor protein (Streptococcus pneumoniae)	75	54	225
113	5	2951	3883	[gnl PID d101119]	ABC transporter subunit (Synecocystis sp.)	75	55	933
121	1	320	1390	[gi 2145131]	repressor of class I heat shock gene expression HrcA (Streptococcus mutans)	75	58	1071
127	6	2614	3000	[gi 3500451]	M. jannaschii predicted coding region MJ1558 (Methanococcus jannaschii)	75	44	387
137	18	10082	10687	[gi 391116]	P-glycoprotein 5 (Entamoeba histolytica)	75	52	606
149	11	8499	9338	[gnl PID d100582]	unknown (Bacillus subtilis)	75	55	840

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
151	6	9100	7673	gi 40467	hads polypeptide, part of CfrA family [Citrobacter freundii]	75	57	1428
158	1	986	3	gnl PID e253891	UDP-glucose 4-epimerase [Bacillus subtilis]	75	63	984
172	8	5653	6774	gi 142978	glycerol dehydrogenase [Bacillus stearothermophilus]	75	56	1122
172	9	7139	9730	gnl PID e288456	unknown [Mycobacterium tuberculosis]	75	58	2592
173	1	261	79	gnl PID e236469	CLOC5.6 [Caenorhabditis elegans]	75	50	183
185	3	3066	2014	gi 1574806	spermidine/putrescine transport ATP-binding protein (potA) [Haemophilus influenzae]	75	56	1051
191	6	5235	4213	gi 149518	phosphoribosyl anthranilate transferase [Lactococcus lactis]	75	61	1023
226	2	1774	1181	gi 2314588	[AE000642] conserved hypothetical protein [Helicobacter pylori]	75	65	594
231	1	1	153	gi 40173	homolog of E. coli ribosomal protein L21 [Bacillus subtilis]	75	57	153
234	1	2	418	gi 2292259	[AF008220] Ytqi [Bacillus subtilis]	75	59	417
279	1	552	151	gi 1119198	unknown protein [Bacillus subtilis]	75	50	402
291	7	3558	3827	gi 40011	ORF17 (AA 1-161) [Bacillus subtilis]	75	48	270
375	2	137	628	gi 410137	ORFX1 [Bacillus subtilis]	75	58	492
6	20	16721	17560	gi 2293323	[AF008220] YcdI [Bacillus subtilis]	74	53	840
7	6	4682	6052	gi 1354211	PEF12-like protein [Bacillus subtilis]	74	60	1371
18	4	3141	2427	gnl PID d101319	YqgI [Bacillus subtilis]	74	54	915
21	6	5885	4800	gi 1072381	glutaryl-aminopeptidase [Lactococcus lactis]	74	59	1086
24	2	739	548	gi 2314762	[AE000655] ABC transporter, permease protein (yaeG) [Helicobacter pylori]	74	46	192
25	1	2	367	gnl PID d100932	H2O-forming NADH Oxidase [Streptococcus mutans]	74	63	366
38	18	11432	12964	gi 537034	ORF_0488 [Escherichia coli]	74	57	1533
48	10	8924	6669	gi 1513069	P-type adenosine triphosphatase [Listeria monocytogenes]	74	53	2256
55	11	11964	11401	gnl PID e283110	femD [Staphylococcus aureus]	74	64	564
61	2	1782	427	gi 2293216	[AF008220] putative UDP-N-acetylmuramate-alanine ligase [Bacillus subtilis]	74	55	1356
76	10	9414	8065	gnl PID d101325	YqiB [Bacillus subtilis]	74	54	1350
83	2	666	926	pic CJ1496 C314	hisc homolog - Bacillus subtilis	74	55	261
86	9	8985	8080	gi 681585	prephenate dehydratase [Lactococcus lactis]	74	55	906

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
102	5	5005	5652	gi1143194	OMP-PAPP transferase (Bacillus subtilis)	74	57	648
103	5	4364	1267	gnl PID e123524	Y10M protein (Bacillus subtilis)	74	62	1098
108	7	6864	7592	gnl PID e257631	methyltransferase (Lactococcus lactis)	74	56	729
131	2	478	146	gnl PID d101320	YqgZ (Bacillus subtilis)	74	45	333
133	2	1380	919	gnl PID e13025	hypothetical protein (Bacillus subtilis)	74	60	462
137	9	6167	6787	gnl PID d100479	Na <sup>+</sup> -ATPase subunit D (Enterococcus hirae)	74	53	621
149	4	3008	3883	gnl PID d100581	high level kasamycin resistance (Bacillus subtilis)	74	55	876
157	2	243	824	gi1157373	methylated-DNA-protein-cysteine methyltransferase (dall) (Haemophilus influenzae)	74	48	582
164	6	3515	4249	gi1410131	ORFX7 (Bacillus subtilis)	74	48	735
167	7	5446	5201	gi1413927	lpa-3r gene product (Bacillus subtilis)	74	55	246
171	1	1	1818	gnl PID d102251	beta-galactosidase (Bacillus circulans)	74	62	1818
172	4	1064	2392	gi1466474	cellulose phosphorylase enzyme 11'' (Bacillus stearothermophilus)	74	50	1329
185	1	326	3	gi11573646	Mg(2+) transport ATPase protein C (myc) (SP:P22037) (Haemophilus influenzae)	74	68	324
188	2	1089	2018	gi11573008	ATP dependent translocator homolog (asba) (Haemophilus influenzae)	74	44	930
189	11	6491	7174	gi11661199	sakacin A production response regulator (Streptococcus mutans)	74	60	684
210	2	520	1287	gi12293207	(AF008220) Y1mQ (Bacillus subtilis)	74	60	768
261	1	836	192	gi1666983	putative ATP binding subunit (Bacillus subtilis)	74	55	645
263	3	1619	3655	gi1663232	Similarity with S. cerevisiae hypothetical 137.7 kD protein in subtelomeric Y' repeat region (Saccharomyces cerevisiae)	74	42	2037
265	2	844	1227	gi149272	Asparaginase (Bacillus licheniformis)	74	64	384
368	1	1	942	gi1603998	unknown (Saccharomyces cerevisiae)	74	39	942
7	16	13357	11921	gnl PID d101324	YqgX (Bacillus subtilis)	73	57	1437
17	10	5706	5449	gnl PID e305362	unnamed protein product (Streptococcus thermophilus)	73	47	258
31	2	522	244	gnl PID d100576	single strand DNA binding protein (Bacillus subtilis)	73	55	279
32	6	5667	6194	gnl PID d101315	YqfG (Bacillus subtilis)	73	58	528
34	15	10281	9790	gnl PID d102151	(AB001684) ORF42C (Chlorella vulgaris)	73	46	492



TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
40	12	9876	9226	[gi 1173517	riboflavin synthase alpha subunit (Actinobacillus pleuropneumoniae)	73	55	651
55	2	3592	839	[gnl PID d101087	cation-transporting ATPase Pacl (Synecocystis sp.)	73	60	2754
55	18	17494	16586	[gnl PID e265580	unknown (Mycobacterium tuberculosis)	73	52	909
65	16	1213	7767	[gi 143419	ribosomal protein L6 (Bacillus stearothermophilus)	73	60	555
66	3	3300	3659	[gnl PID e269883	LacF (Lactobacillus casei)	73	52	360
70	10	5557	5733	[gi 857631	envelope protein (human immunodeficiency virus type 1)	73	60	177
71	4	6133	8262	[gnl PID e22063	ss-1,4-galactosyltransferase (Streptococcus pneumoniae)	73	45	2130
72	1	3	851	[gi 2293177	(AF008220) transporter (Bacillus subtilis)	73	50	849
76	7	7019	6195	[gnl PID d101325	YqjF (Bacillus subtilis)	73	66	825
76	12	10009	9533	[gi 1573086	uridine kinase (uridine monophosphokinase) (udk) (Haemophilus influenzae)	73	54	477
80	7	8113	9372	[gi 377823	aminopeptidase (Bacillus subtilis)	73	60	1260
97	5	3389	1668	[gnl PID d101954	dihydroxyacid dehydratase (Synecocystis sp.)	73	54	1722
98	9	6912	7619	[gnl PID e114991	PisE (Mycobacterium tuberculosis)	73	54	708
108	11	10928	10440	[gi 388109	regulatory protein (Enterococcus faecalis)	73	54	489
128	6	3632	4222	[gi 1685111	orf1091 (Streptococcus thermophilus)	73	63	591
138	2	1575	394	[gi 147326	transport protein (Escherichia coli)	73	60	1182
140	13	12538	11903	[pir E53402 E534	serine O-acetyltransferase (EC 2.3.1.30) - Bacillus stearothermophilus	73	55	636
162	5	5701	4991	[gnl PID e233511	putative YhaO protein (Bacillus subtilis)	73	50	711
164	4	2323	2790	[gi 1592076	hypothetical protein (SP.P25768) (Methanococcus jannaschii)	73	52	468
164	8	4815	5546	[gi 410137	ORF13 (Bacillus subtilis)	73	56	732
170	5	4394	5302	[gnl PID d100959	homologue of unidentified protein of E. coli (Bacillus subtilis)	73	46	909
178	7	3893	4855	[gi 46242	modulation protein B, 5' end (Rhizobium loti)	73	56	963
204	6	5096	4278	[gnl PID e214719	PicR protein (Bacillus thuringiensis)	73	41	819
213	2	812	2037	[gi 1565296	ribosomal protein S1 homology; sequence specific DNA-binding protein (Leuconostoc lactis)	73	55	1206
231	2	84	287	[gi 40173	homolog of E. coli ribosomal protein L21 (Bacillus subtilis)	73	61	204
237	1	2	505	[gi 173151	adenine phosphoribosyltransferase (Escherichia coli)	73	51	504

**TABLE 2**  
S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
95	2	2004	1717	gnl PID e323527	putative Asp23 protein [Bacillus subtilis]	72	40	288
109	1	1452	118	gnl 43331	alkaline phosphatase regulatory protein [Bacillus subtilis]	72	52	1335
126	1	3	2192	gnl PID d101831	glutamine-binding periplasmic protein [Synechocystis sp.]	72	46	2190
130	3	1735	2478	gnl 2415396	[AF015775] carboxypeptidase [Bacillus subtilis]	72	53	744
137	6	2585	2929	gnl 472922	V-type Na-ATPase [Enterococcus hirae]	72	46	345
140	10	9601	9203	gnl 49224	[UAF 4] [Synechococcus sp.]	72	48	399
146	5	1906	1247	gnl PID e324945	hypothetical protein [Bacillus subtilis]	72	45	660
147	2	2084	1083	gnl PID e325016	hypothetical protein [Bacillus subtilis]	72	56	1002
147	5	6156	5146	gnl 472327	[TPP-dependent acetoin dehydrogenase beta-subunit] [Clostridium magnum]	72	56	1011
148	8	5381	6433	gnl 974332	[NAD(P)H-dependent dihydroxyacetone-phosphate reductase [Bacillus subtilis]	72	54	1053
148	14	10256	9675	gnl PID d101319	[YggN [Bacillus subtilis]	72	50	582
159	8	4005	4949	gnl 1768770	[AE000330] 0463; 24 pct identical (44 gaps) to 338 residues from penicillin-binding protein 4*, PBP4_BACSU SM: P12959 (45) aa] [Escherichia coli]	72	43	945
172	10	9907	10620	gnl 761387	unknown [Saccharomyces cerevisiae]	72	55	714
220	3	2862	3602	gnl 1574175	hypothetical [Haemophilus influenzae]	72	50	741
267	1	3	449	gnl 290511	[470 [Escherichia coli]	72	48	447
281	2	899	540	gnl PID d100964	homologue of aspartokinase 2 alpha and beta subunits LysC of B. subtilis [Bacillus subtilis]	72	45	360
290	1	1018	14	gnl 474195	[This ORF is homologous to a 40.0 kd hypothetical protein in the htrB 3' region from E. coli. Accession Number X61000 (Mycoplasma-like organism)]	72	54	1005
300	1	63	587	gnl 746399	[transcription elongation factor [Escherichia coli]	72	50	525
316	1	1326	4	gnl 158127	[protein kinase C [Drosophila melanogaster]	72	40	1323
342	1	227	3	gnl PID d101164	unknown [Bacillus subtilis]	72	54	225
354	1	1	1005	gnl PID d102048	[C. thermophilum beta-glucosidase; P26208 (985) [Bacillus subtilis]	72	52	1005
6	10	8134	10467	gnl PID e264229	unknown [Mycobacterium tuberculosis]	71	57	2334
7	20	16231	15464	gnl 18046	[3-oxoacyl-(acyl-carrier protein) reductase [Cuphea lanceolata]	71	52	768
15	1	1297	2	gnl PID d100571	[replicative DNA helicase [Bacillus subtilis]	71	51	1296
15	4	4435	3869	gnl 499384	[orf189 [Bacillus subtilis]	71	47	567

TABLE 2

S. pneumoniae: Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
18	6	5120	4218	gnl PID d101318	yggG [Bacillus subtilis]	71	51	903
29	1	1	540	gnl 1773142	similar to the 20.2kd protein in TETB-EXOA region of B. subtilis [Escherichia coli]	71	56	540
38	120	11327	113830	gnl 537036	ORF_0158 [Escherichia coli]	71	48	504
51	112	115015	112676	gnl 149528	dipeptidyl peptidase IV [Lactococcus lactis]	71	55	2340
5	123	21040	20585	gnl 2343285	IAF015433) surface located protein [Lactobacillus rhamnosus]	71	58	456
60	2	705	265	gnl PID d101320	yggZ [Bacillus subtilis]	71	44	441
71	18	24679	26226	gnl 580920	rodD (gtaA) polypeptide (AA 1-673) [Bacillus subtilis]	71	44	1548
71	125	30587	30360	gnl 606028	ORF_0414; Geneplot suggests frameshift near start but none found [Escherichia coli]	71	50	228
72	6	5239	6729	gnl 580835	lysine decarboxylase [Bacillus subtilis]	71	48	1491
72	14	11991	12878	gnl 624085	similar to rat beta-alanine synthetase encoded by GenBank Accession Number S27881; contains ATP/GTP binding motif [Paramacium bursaria Chlorella virus 1]	71	54	888
73	11	7269	7033	gnl 1906594	PM1 [Rattus norvegicus]	71	42	237
74	6	10385	8517	gnl 1573733	prolyl-L-lysine synthetase (proS) [Haemophilus influenzae]	71	52	1869
81	9	5772	6578	gnl 147404	mannose permease subunit II-M-Man [Escherichia coli]	71	45	807
86	5	4602	3604	gnl PID c122063	ss-1,4-galactosyltransferase [Streptococcus pneumoniae]	71	53	999
105	4	3619	4707	gnl 2323341	IAF014460) PepQ [Streptococcus mutans]	71	58	1089
106	13	13557	12955	gnl 1519287	Lema [Listeria monocytogenes]	71	48	603
114	2	1029	1979	gnl 310303	mosa [Rhizobium meliloti]	71	55	951
122	2	564	1205	gnl 1649037	glutamine transport ATP-binding protein GLNQ [Salmonella typhimurium]	71	50	642
132	5	9018	7063	gnl PID d102049	H. influenzae hypothetical ABC transporter: P44808 (974) [Bacillus subtilis]	71	51	1956
140	1	1141	227	gnl 1633788	IAE000015) Mycoplasma pneumoniae, fructose-bisphosphate aldolase; similar to Swiss-Prot Accession Number P13243, from B. subtilis [Mycoplasma pneumoniae]	71	49	915
140	5	5635	4973	gnl PID d100964	homologue of hypothetical protein in a rapamycin synthesis gene cluster of Streptomyces hygroscopicus [Bacillus subtilis]	71	48	663
141	7	7369	7845	gnl PID d102005	IAE001488) FUNCTION UNKNOWN, SIMILAR PRODUCT IN E. COLI AND MYCOPLASMA PNEUMONIAE [Bacillus subtilis]	71	51	477

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
193	1	1	165	gi 46912	ribosomal protein L13 (Staphylococcus carnosus)	71	59	165
194	3	2205	1594	gi 535351	CodY (Bacillus subtilis)	71	52	612
199	3	1510	1319	gi 2182574	(AE000090) Y4pE (Rhizobium sp. MCR234)	71	45	192
208	2	2616	3752	gi 1787378	(AE000211) hypothetical protein in purB 5' region (Escherichia coli)	71	57	1137
209	2	2022	1141	gi 41432	lepC gene product (Escherichia coli)	71	46	882
210	5	1911	3071	gi 49316	ORF2 gene product (Bacillus subtilis)	71	45	1161
210	6	3059	3386	gi 580900	(JMF) gene product (Bacillus subtilis)	71	48	318
212	2	3561	1381	gi 557567	ribonucleotide reductase R1 subunit (Mycobacterium tuberculosis)	71	53	2181
231	3	2003	2920	gnl vib d101320	Y4qR (Bacillus subtilis)	71	50	918
244	1	13	1053	gnl vib d100964	homologue of aspartokinase 2 alpha and beta subunits LysC of B. subtilis (Bacillus subtilis)	71	55	1041
251	2	1008	1874	gi 755601	unknown (Bacillus subtilis)	71	46	867
282	2	906	712	gi 1353874	unknown (Rhodobacter capsulatus)	71	46	195
312	4	2117	1565	gnl vib d102245	(AB005554) Y2bF (Bacillus subtilis)	71	34	573
338	1	3	683	gi 1591045	hypothetical protein (SP:P31466) (Methanococcus jannaschii)	71	48	681
346	1	3	164	gi 1591234	hypothetical protein (SP:P42297) (Methanococcus jannaschii)	71	36	162
374	1	619	2	gi 397526	clumping factor (Staphylococcus aureus)	71	23	618
377	1	688	2	gi 397526	clumping factor (Staphylococcus aureus)	71	23	687
3	8	7419	6958	gnl vib e269486	unknown (Bacillus subtilis)	70	42	462
3	10	8195	9075	gnl vib e25543	putative iron dependant repressor (Staphylococcus epidermidis)	70	46	681
7	14	11024	10254	gnl vib d100290	undefined open reading frame (Bacillus stearothermophilus)	70	55	771
7	18	14213	13719	gnl vib d101090	biotin carboxyl carrier protein of acetyl-CoA carboxylase (Synechocystis sp.)	70	56	495
9	2	1057	287	gnl vib d100581	unknown (Bacillus subtilis)	70	52	771
12	4	2610	1789	gnl vib d101195	lycJ (Bacillus subtilis)	70	52	822
21	2	2586	1846	gi 2293447	(AF008930) ATPase (Bacillus subtilis)	70	54	741
22	13	10955	11512	gi 1165295	Ydr540cp (Saccharomyces cerevisiae)	70	50	558
30	6	4315	1980	gi 39478	ATP binding protein of transport ATPases (Bacillus firmus)	70	51	336

TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
31	1	370	113	[gi 662792	[single-stranded DNA binding protein (unidentified eubacterium)	70	36	258
33	15	10639	9521	[gi 1161219	[homologous to D-amino acid dehydrogenase enzyme (Pseudomonas aeruginosa)	70	50	1119
38	6	3812	4312	[gi 2058547	[CusA (Streptococcus gordonii)	70	48	501
38	25	17986	18477	[gi 537033	[ORF f356 (Escherichia coli)	70	58	492
40	13	11054	9846	[gi 1173516	[riboflavin-specific deaminase (Acetobacterium pleuroaeromonas)	70	52	1209
42	2	722	1954	[gi 1146183	[putative (Bacillus subtilis)	70	51	1233
43	3	2373	1612	[gi 1591493	[glutamine transport ATP-binding protein Q (Methanococcus jannaschii)	70	48	762
45	8	9197	8049	[gnl pid d102036	[subunit of ADP-glucose pyrophosphorylase (Bacillus stearothermophilus)	70	54	1149
59	2	567	956	[gnl pid d100302	[neopullulanase (Bacillus sp.)	70	42	390
60	1	1874	795	[gnl pid e276466	[aminopeptidase P (Lactococcus lactis)	70	48	1080
61	4	5553	2437	[gnl pid e275074	[SNF (Bacillus cereus)	70	51	3117
61	7	7914	6802	[gi 1573037	[cystathionine gamma-synthase (malB) (Haemophilus influenzae)	70	52	1113
63	7	5372	7222	[gnl pid d100974	[unknown (Bacillus subtilis)	70	54	1851
68	7	7126	6962	[gi 1263014	[ema18.1 gene product (Streptococcus pyogenes)	70	37	165
72	12	10081	10911	[gi 2313093	[AAC00524) carboxymethyltransferase (nspC) (Helicobacter pylori)	70	56	831
75	10	7888	8124	[gi 1877423	[galactose-1-P-uridylyl transferase (Streptococcus mutans)	70	59	237
79	3	3424	2525	[gi 139881	[ORF 311 (AA 1-311) (Bacillus subtilis)	70	47	900
87	10	9369	7324	[gnl pid e123506	[putative Pkn2 protein (Bacillus subtilis)	70	52	2046
96	14	10640	11788	[gi 1573209	[tRNA guanine transglycosylase (tgt) (Haemophilus influenzae)	70	52	1149
113	2	574	1086	[gi 633630	[A160 (Saccharomyces cerevisiae)	70	59	513
123	5	2901	3461	[gnl pid d100385	[unknown (Bacillus subtilis)	70	45	561
125	5	4593	4282	[gnl pid e276474	[capacitative calcium entry channel 1 (Bos taurus)	70	35	312
129	5	4500	3454	[gnl pid d101314	[Yqet (Bacillus subtilis)	70	47	1047
133	3	2608	1394	[gi 2293312	[AAC00220) YcfP (Bacillus subtilis)	70	50	1215
135	1	420	662	[gnl pid e265530	[yorfE (Streptococcus pneumoniae)	70	47	243
137	3	438	932	[gi 472919	[v-type H <sup>+</sup> -ATPase (Enterococcus hirae)	70	57	495
138	1	440	3	[gi 147336	[transmembrane protein (Escherichia coli)	70	42	438

TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
140	16	118796	16164	gi 976441	MS-methyltetrahydrofolate homocysteine methyltransferase [Saccharomyces cerevisiae]	70	53	2433
167	10	8263	6695	gi 149535	D-alanine activating enzyme [Lactobacillus casei]	70	52	1569
204	4	3226	2747	gnl PID d102049	E. coli hypothetical protein; P11805 (267) [Bacillus subtilis]	70	51	480
207	3	2627	2869	gnl PID e309213	raccAP [Dictyostellium discoideum]	70	45	243
282	3	1136	882	gi 1353874	unknown [Rhodobacter capsulatus]	70	50	255
6	21	17554	18453	gnl PID e233879	hypothetical protein [Bacillus subtilis]	69	44	900
6	22	118482	19471	gi 580883	ipa-88d gene product [Bacillus subtilis]	69	53	990
22	6	4682	5824	gi 2209379	[AF006720] ProJ [Bacillus subtilis]	69	48	1143
22	9	7992	8651	gnl PID d100580	unknown [Bacillus subtilis]	69	51	660
22	12	9871	10767	gnl PID d100581	unknown [Bacillus subtilis]	69	51	897
27	7	5857	5348	gnl PID d102012	[AB001488] FUNCTION UNKNOWN [Bacillus subtilis]	69	28	510
36	10	7294	10116	gi 437916	isoleucyl-tRNA synthetase [Staphylococcus aureus]	69	53	2823
18	1	2	1090	gi 141900	alcohol dehydrogenase (EC 1.1.1.1) [Alcaligenes eutrophus]	69	48	1089
40	14	11333	11944	gi 1573280	Holliday junction DNA helicase (ruvA) [Haemophilus influenzae]	69	44	612
40	15	11942	12517	gi 1573653	DNA-3-methyladenine glycosidase 1 (tagI) [Haemophilus influenzae]	69	50	576
45	6	6947	5490	gi 580887	starch (bacterial glycogen) synthase [Bacillus subtilis]	69	47	1458
48	14	124932	24153	gnl PID e233870	hypothetical protein [Bacillus subtilis]	69	36	780
49	6	6181	6521	gi 396297	similar to phosphotransferase system enzyme II [Escherichia coli]	69	50	339
49	8	7586	8138	gi 396420	similar to Alcaligenes eutrophus pncI D-ribulose-5-phosphate 3 epimerase [Escherichia coli]	69	49	753
55	6	8262	7033	gi 1146238	[poly(A) polymerase [Bacillus subtilis]	69	50	1230
59	3	954	2333	gnl PID e113038	hypothetical protein [Bacillus subtilis]	69	54	1380
62	3	1170	1418	gnl PID d101915	hypothetical protein [Synechocystis sp.]	69	49	249
63	8	7298	7762	gi 293017	[ORF] (put. 1): putative [Lactococcus lactis]	69	42	465
66	4	3657	5081	gi 153755	phospho-beta-D-galactosidase (EC 3.2.1.85) [Lactococcus lactis cremoris]	69	49	1425
66	5	5126	6829	gi 433809	penzyme II [Streptococcus mutans]	69	46	1704
71	6	10017	10664	gnl PID e122061	[ss-1,4-galactosyltransferase [Streptococcus pneumoniae]	69	39	648

TABLE 2  
S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
71	21	27730	27966	gml PIU d100649	DE-cadherin (Drosophila melanogaster)	69	30	237
77	1	1	237	gi 287870	groES gene product (Lactococcus lactis)	69	44	237
81	5	3622	4101	gi 1513605	fucose operon protein (fucU) (Haemophilus influenzae)	69	52	480
83	1	40	714	pir CJ3496 C334	hisc homolog - Bacillus subtilis	69	46	675
83	16	15742	16335	gi 143372	phosphoribosyl glycineamide formyltransferase (PUR-N) (Bacillus subtilis)	69	46	594
85	2	1212	916	gi 194097	IFN-response element binding factor 1 (Mus musculus)	69	48	297
91	5	3678	4274	gi 1574712	anaerobic ribonucleoside-triphosphate reductase activating protein (nrdG) (Haemophilus influenzae)	69	44	597
98	5	3247	4032	gml PIU d100262	tlvF protein (Salmonella typhimurium)	69	51	786
108	5	4085	5056	gml PIU e257629	transcription factor (Lactococcus lactis)	69	49	972
126	3	3078	4568	gml PIU d101329	YqjJ (Bacillus subtilis)	69	49	1491
131	6	4121	2889	gml PIU d101314	YqeR (Bacillus subtilis)	69	47	1233
136	2	1505	2299	gml PIU d100581	unknown (Bacillus subtilis)	69	47	795
149	5	3852	4763	gml PIU e323525	YloQ protein (Bacillus subtilis)	69	50	932
149	12	9336	10655	gi 151571	homology with E. coli and P. aeruginosa lysA gene; product of unknown function; putative (Pseudomonas syringae)	69	52	1320
153	4	3191	3829	gi 1710373	BrnQ (Bacillus subtilis)	69	44	639
169	3	849	2124	gml PIU d100582	temperature sensitive cell division (Bacillus subtilis)	69	49	1476
180	1	566	3	gi 488339	alpha-amyase (unidentified cloning vector)	69	50	564
212	1	1196	231	gi 1395209	ribonucleotide reductase R2-2 small subunit (Mycobacterium tuberculosis)	69	53	966
226	1	2	661	pir JQ2285 JQ22	nodulin-26 - soybean	69	41	660
233	5	3249	4766	gi 472918	v-type Na-ATPase (Enterococcus hirae)	69	56	1518
235	3	660	1766	gi 148945	methylase (Haemophilus influenzae)	69	43	1107
243	2	865	2361	gml PIU d100225	ORF5 (Barley yellow dwarf virus)	69	69	1497
251	3	2899	1967	gi 2289231	macrolide-efflux protein (Streptococcus agalactiae)	69	51	933
310	1	1	282	gml PIU e122442	peptide deformylase (Clostridium beijerinckii)	69	55	282
369	1	868	2	gi 397526	clumping factor (Staphylococcus aureus)	69	22	867
370	1	749	3	gi 397526	clumping factor (Staphylococcus aureus)	69	21	747

TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
379	1	44	280	gnl PID d100649	DE-cadherin (Drosophila melanogaster)	69	30	237
388	1	260	72	gnl 1787524	[AE000225] hypothetical 32.7 kD protein in trpL-burA intergenic region [Escherichia coli]	69	44	189
1	2	2006	3040	gnl PID d101809	ABC transporter [Synechocystis sp.]	68	43	1035
12	5	3958	2600	gnl 2182992	histidine kinase [Lactococcus lactis cremoris]	68	45	1359
15	2	1790	1311	gnl S16974 RSBS	ribosomal protein L9 - Bacillus stearothermophilus	68	56	480
16	6	7353	5701	gnl 1787041	[AE000184] 0530: This 530 aa ort is 33 pct identical (14 gaps) to 525 residues of an approx. 640 aa protein YHES_MAEIN SW: P44808 [Escherichia coli]	68	45	1653
17	12	6479	6805	gnl 553165	acetylcholinesterase [Homo sapiens]	68	68	327
20	13	14128	14505	gnl 142700	p competence protein (ttg start codon) (put. 1: putative [Bacillus subtilis])	68	40	378
22	32	124612	25397	gnl 289262	[COME ORF3] [Bacillus subtilis]	68	36	786
30	7	4548	4288	gnl 111388	ORF1 [Azorhizobium caulinodans]	68	46	261
36	5	3911	4585	gnl 1573041	hypothetical [Haemophilus influenzae]	68	54	675
46	6	5219	6040	gnl 1790131	[AE000446] hypothetical 29.7 kD protein in tbaA-gyrB intergenic region [Escherichia coli]	68	47	822
54	10	6235	7086	gnl 882579	CG Site No. 29739 [Escherichia coli]	68	55	852
55	5	7069	5165	gnl PID d101914	ABC transporter [Synechocystis sp.]	68	45	1905
71	3	6134	5613	gnl 1573353	outer membrane integrity protein (tolA) [Haemophilus influenzae]	68	50	522
71	10	15342	16613	gnl 580866	ipa-12d gene product [Bacillus subtilis]	68	31	1272
71	12	17560	18792	gnl 44073	[SecY protein [Lactococcus lactis]	68	35	1233
71	17	22295	24703	gnl 1762349	involved in protein export [Bacillus subtilis]	68	50	2409
73	16	10208	9729	gnl 1353537	dUTPase [Bacteriophage phi]	68	51	480
86	18	17198	16011	gnl 411943	ipa-19d gene product [Bacillus subtilis]	68	53	1188
87	17	17491	15866	gnl 150209	ORF 1 [Mycoplama mycoides]	68	43	1626
89	6	5139	4154	gnl 1498824	M. jannaschii predicted coding region NJ0062 [Methanococcus jannaschii]	68	40	786
89	11	8021	8242	gnl 150974	4-oxalocrotonate tautomerase [Pseudomonas putida]	68	43	222
97	8	6755	5194	gnl 2367358	[AE000491] hypothetical 52.9 kD protein in atdB-rpsF intergenic region [Escherichia coli]	68	41	1362



TABLE 2 S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
98	3	1418	2108	[gnl PID d100261]	LjvA protein [Salmonella typhimurium]	68	40	891
99	11	16414	17280	[gi 455363]	regulatory protein [Streptococcus mutans]	68	50	867
115	3	5034	3693	[gi 466474]	cellulose phosphotransferase enzyme II' [Bacillus stearothermophilus]	68	44	1362
124	7	3394	3221	[gnl PID d100702]	cutA protein [Schizosaccharomyces pombe]	68	56	174
125	2	2923	1922	[gi 450366]	transmembrane protein [Bacillus subtilis]	68	50	1002
132	2	4858	2888	[gnl PID d101732]	DNA ligase [Synecocystis sp.]	68	52	1971
140	7	7765	7580	[gi 1209711]	unknown [Saccharomyces cerevisiae]	68	47	186
150	1	519	3	[gi 402490]	ADP-ribosylarginine hydrolase [Mus musculus]	68	59	537
164	1	58	867	[gnl PID e255114]	glutamate racemase [Bacillus subtilis]	68	49	810
	2	819	1835	[gnl PID e255117]	hypothetical protein [Bacillus subtilis]	68	50	1017
169	7	3946	4104	[pir B54545 B545]	hypothetical protein - Lactococcus lactis subsp. lactis plasmid pSL2	68	40	159
170	4	4247	4396	[gi 304146]	spore coat protein [Bacillus subtilis]	68	52	150
171	8	6002	7054	[gi 38722]	precursor (aa 20 to 381) [Acinetobacter calcoaceticus]	68	54	1053
198	3	2473	1871	[gnl PID e13075]	hypothetical protein [Bacillus subtilis]	68	46	603
211	2	969	1802	[gi 1419528]	ELIC-man [Lactobacillus curvatus]	68	45	834
214	8	4926	4231	[gnl PID d102049]	M. influenzae hypothetical protein; P43990 (182) [Bacillus subtilis]	68	50	696
217	6	4955	5170	[gnl PID e326966]	similar to B. vulgaris CMS-associated mitochondrial (reverse transcriptase) [Arabidopsis thaliana]	68	36	216
218	7	3930	4745	[gi 2293198]	[AF008220] YtgP [Bacillus subtilis]	68	38	816
220	6	4628	4318	[gnl PID e125791]	[AJ000005] orf1 [Bacillus megaterium]	68	51	291
236	3	746	108	[gi 410137]	ORFX13 [Bacillus subtilis]	68	46	639
237	2	675	1451	[gi 396348]	homoserine transuccinylase [Escherichia coli]	68	49	777
250	4	771	1229	[gi 310859]	ORF2 [Synecococcus sp.]	68	50	459
254	1	517	155	[gi 1787105]	[AE000189] o648 was o669; This 669 aa orf is 40 pct identical (1 gap) to 217 residues of an approx. 232 aa protein Y8A_HAEIN SM: P45247 [Escherichia coli]	68	44	363
337	1	1	774	[gnl PID e261990]	putative orf [Bacillus subtilis]	68	47	774
345	1	3	653	[gi 149513]	[thymidylate synthase IEC 2.1.1.45] [Lactococcus lactis]	68	61	651

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% Ident	length (nt)
386	2	417	4	[gi1573353]	outer membrane integrity protein (tolA) [Haemophilus influenzae]	68	51	414
2	4	5222	4697	[gi1592141]	M. jannaschii predicted coding region MJ1507 [Methanococcus jannaschii]	67	26	1026
3	6	5397	4591	[gi12293175]	[AF008220] signal transduction regulator [Bacillus subtilis]	67	44	807
5	2	2301	574	[gi12313385]	[AE000547] para-aminobenzoate synthetase (pabB) [Helicobacter pylori]	67	48	1728
6	19	16063	16758	[gi1413931]	lipa-7d gene product [Bacillus subtilis]	67	41	696
22	8	7094	7897	[gi11928962]	pyrroline-5-carboxylate reductase [Actinidia deliciosa]	67	51	804
29	10	8335	9072	[gi1468745]	gtcr gene product [Bacillus brevis]	67	41	738
31	3	1379	585	[gi12425123]	[AF019986] PabB [Dictyostelium discoideum]	67	49	795
32	11	8849	10150	[gi142029]	ORF1 gene product [Escherichia coli]	67	47	1302
36	16	114810	15546	[gi1592142]	ABC transporter, probable ATP-binding subunit [Methanococcus jannaschii]	67	43	717
38	9	4958	5392	[gn11P1D]e214803	[T2283.3] [Caenorhabditis elegans]	67	47	435
38	21	11375	14512	[gi1537017]	ORF_0216 [Escherichia coli]	67	52	738
45	9	10428	9181	[gi1551710]	branching enzyme (glgB) [EC 2.4.1.18] [Bacillus stearothermophilus]	67	51	1268
48	23	18344	17514	[gi1413949]	lipa-25d gene product [Bacillus subtilis]	67	50	831
50	2	1773	952	[gn11P1D]d101330	[YqJ0] [Bacillus subtilis]	67	55	822
53	1	431	3	[gi1574291]	[flaB] transcription regulation repressor (pilB) [Haemophilus influenzae]	67	40	429
55	13	112740	111946	[gn11P1D]e252990	ORF YOL037c [Saccharomyces cerevisiae]	67	51	795
61	9	9210	8329	[gn11P1D]e264711	ATP-binding cassette transporter A [Staphylococcus aureus]	67	50	882
71	2	5614	6117	[gi1197667]	[vitellogenin (Anolis pulchellus)]	67	36	504
81	7	4489	4983	[gi11142714]	[phosphoenolpyruvate:mannose phosphotransferase element 118] [Lactobacillus curvatus]	67	42	495
83	7	2957	3214	[gi11276746]	Acyl carrier protein [Porphyra purpurea]	67	37	258
86	8	8140	6809	[gi11147744]	[PSR] [Enterococcus hirae]	67	45	1332
97	3	986	1366	[gn11P1D]d102235	[AB000631] unnamed protein product [Streptococcus mutans]	67	43	381
102	1	601	1413	[gi1682765]	[mccB gene product] [Escherichia coli]	67	36	813
106	3	1109	1987	[gi1148921]	[LicD protein] [Haemophilus influenzae]	67	43	879
115	4	5982	5656	[gi1895750]	[putative cellobiose phosphotransferase enzyme III] [Bacillus subtilis]	67	44	327

TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
115	7	8421	8077	gi 466473	cellobiose phosphotransferase enzyme II' [Bacillus stearothermophilus]	67	51	345
127	113	8127	7021	gi 147326	transport protein [Escherichia coli]	67	45	1107
136	3	2215	2859	gnl PID d100581	unknown [Bacillus subtilis]	67	49	645
140	21	23317	20906	gnl PID d101912	phenylalanine-tRNA synthetase [Synchocystis sp.]	67	43	2412
146	6	2894	1893	gi 2182994	histidine kinase [Lactococcus lactis cremoris]	67	44	1002
151	8	11476	11117	gnl PID d100085	ORF129 [Bacillus cereus]	67	48	360
160	10	7453	8646	gi 2281317	orf6: similar to a Streptococcus pneumoniae putative membrane protein encoded by GenBank Accession Number X99400; inactivation of the Orf6 gene leads to UV-sensitivity and to decrease of homologous recombination (plasmidic test) [Lactococcus l.	67	46	1194
163	3	3099	4505	gnl PID d101317	YqfR [Bacillus subtilis]	67	47	1407
167	8	6704	5454	gi 1161933	DltB [Lactobacillus casei]	67	45	1251
169	4	2322	2879	gnl PID d101331	YqkG [Bacillus subtilis]	67	41	558
171	11	7656	8184	gi 153841	pneumococcal surface protein A [Streptococcus pneumoniae]	67	50	729
188	3	1930	3723	gi 1542975	AbcB [Thermoanaerobacterium thermosulfurigenes]	67	46	1794
189	6	3599	3141	gnl PID e325178	hypothetical protein [Bacillus subtilis]	67	52	459
205	3	1663	2211	gi 606073	ORF_0169 [Escherichia coli]	67	47	549
207	4	2896	3456	gi 2276374	DtxR/iron regulated lipoprotein precursor [Corynebacterium diphtheriae]	67	49	561
217	3	4086	3703	gi 895750	putative cellobiose phosphotransferase enzyme III' [Bacillus subtilis]	67	42	384
246	2	291	662	gi 1842438	unknown [Bacillus subtilis]	67	43	372
252	1	2	745	gi 2351768	PapA [Streptococcus pneumoniae]	67	41	744
265	3	1134	1811	gi 2313847	(AE000585) L-asparaginase II (aneB) [Helicobacter pylori]	67	42	678
295	1	1	375	gi 2276374	DtxR/iron regulated lipoprotein precursor [Corynebacterium diphtheriae]	67	43	375
3	7	4898	5146	gnl PID e255179	unknown [Mycobacterium tuberculosis]	66	56	249
3	1	189	3	gnl PID e269548	unknown [Bacillus subtilis]	66	48	387
3	20	19267	20805	gi 39556	ITGlc [Bacillus subtilis]	66	50	1539
4	3	2545	2718	gi 1787564	(AE000228) phage shock protein C [Escherichia coli]	66	36	174
5	9	11197	12592	gi 1574291	fimbrial transcription regulation repressor (pilB) [Haemophilus influenzae]	66	46	606

TABLE 2  
S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
9	4	2872	1451	gnl PIJ e266928	unknown [Mycobacterium tuberculosis]	66	43	1422
12	2	1469	1200	gi 520407	orf2: GTG start codon [Bacillus thuringiensis]	66	42	270
15	12	10979	9897	gi 2314738	(AE000653) translation elongation factor EF-Ts (tsf) [Helicobacter pylori]	66	49	1083
16	2	1312	734	gnl PID d102245	(AB005554) ynfF [Bacillus subtilis]	66	35	579
22	3	1372	1851	gi 1480916	signal peptidase type II [Lactococcus lactis]	66	38	480
22	7	5828	7096	gnl PID e206261	gamma-glutamyl phosphate reductase [Streptococcus thermophilus]	66	51	1269
22	20	16194	17138	gnl PID e281914	YnfL [Bacillus subtilis]	66	50	945
30	2	530	976	gi 2314379	(AE000627) ABC transporter, ATP-binding protein (yhvG) [Helicobacter pylori]	66	40	447
32	1	199	984	gi 312444	ORF2 [Bacillus caldolyticus]	66	49	786
33	13	8352	7234	gi 1387979	44% identity over 302 residues with hypothetical protein from Synecocystis sp. accession D64006.CD; expression induced by environmental stress; some similarity to glycosyl transferases; two potential membrane-spanning helices [Bacillus subtilis]	66	44	1119
34	6	5658	4708	gnl PID e250724	orf2 [Lactobacillus sake]	66	39	951
34	14	9792	9574	gi 1590997	M. jannaschii predicted coding region MJ0772 [Methanococcus jannaschii]	66	48	219
35	16	15163	14501	gi 1773352	CapSM [Staphylococcus aureus]	66	46	663
36	9	6173	6976	gi 1518680	minicell associated protein BlvIVA [Bacillus subtilis]	66	35	804
36	11	110396	10824	bus 155144	insulin activator factor, INSAF [human, Pancreatic insulinoma, Peptide Partial, 744 aa] [Homo sapiens]	66	43	429
48	1	28	1419	gnl PID e325204	hypothetical protein [Bacillus subtilis]	66	50	1392
48	7	3810	4112	gi 2182574	(AE000090) Y4pE [Rhizobium sp. NGR234]	66	40	303
52	4	3595	2789	gi 308565	major cell-binding factor [Campylobacter jejuni]	66	52	807
54	3	2662	1076	gnl PID d101811	glutamine-binding periplasmic protein [Synecocystis sp.]	66	43	1587
61	10	9740	9183	gnl PID e154144	mdr gene product [Staphylococcus aureus]	66	44	558
72	13	10893	11193	gi 2313129	(AE000526) M. pylori predicted coding region HP0049 [Helicobacter pylori]	66	44	1101
74	9	13267	12476	gi 1573941	hypothetical [Haemophilus influenzae]	66	43	792
75	1	2	868	gi 1574631	nicotinamide mononucleotide transporter (pnuC) [Haemophilus influenzae]	66	48	867
75	7	5103	4275	gi 41312	put. EBG repressor protein [Escherichia coli]	66	40	1029

TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
82	7	6813	8123	gnl PIU e255128	trigler factor (Bacillus subtilis)	66	53	1311
83	3	905	1219	gnl C31496 C336	hinc homology - Bacillus subtilis	66	44	315
86	10	9407	8925	gnl 603584	shikimate kinase (Lactococcus lactis)	66	41	483
88	10	7001	6060	gnl 2098719	putative fimbrial-associated protein (Actinomyces naeslundii)	66	52	942
89	1	951	4	gnl 410118	ORFX19 (Bacillus subtilis)	66	41	948
93	7	3661	2711	gnl 1787936	(AE000260) (298: This 298 aa orf is 51 pct identical (5 gaps) to 297 residues of an approx. 306 aa protein YCSU_BACSU SM: K42972 (Escherichia coli)	66	49	951
104	3	1805	3049	gnl 1469784	putative cell division protein ftsW (Enterococcus hirae)	66	48	1245
106	14	13576	14253	gnl 40027	homologous to E.coli gidB (Bacillus subtilis)	66	52	678
107	3	965	1864	gnl 144858	ORF A (Clostridium perfringens)	66	49	900
112	7	5718	6593	gnl 609332	OPRA (Haemophilus influenzae)	66	43	876
115	1	3	302	gnl 727367	MyrIP (Saccharomyces cerevisiae)	66	56	300
122	1	3	566	gnl PID d101328	Yqiy (Bacillus subtilis)	66	36	564
126	8	11759	11046	gnl PID d101163	ORF3 (Bacillus subtilis)	66	48	714
128	11	8201	8431	gnl 726288	growth associated protein GAP-43 (Xenopus laevis)	66	41	231
131	8	4894	4508	gnl 486661	TMna related protein (Saccharomyces cerevisiae)	66	39	387
140	3	3236	2574	gnl 40056	phoP gene product (Bacillus subtilis)	66	16	663
140	15	16318	15434	gnl 1658189	5,10-methylenetetrahydrofolate reductase (Erwinia carotovora)	66	48	885
146	12	7926	7636	gnl PID d101140	transposase (Synecocystis sp.)	66	42	291
147	6	7137	6154	gnl 472326	TPP-dependent acetoin dehydrogenase alpha-subunit (Clostridium magnum)	66	48	984
149	6	4435	5430	gnl PID d101807	pentose-5-phosphate-3-epimerase (Synecocystis sp.)	66	46	996
149	13	10754	11575	gnl 42371	pyruvate formate-lyase activating enzyme (AA 1-246) (Escherichia coli)	66	42	822
186	4	2578	2270	gnl PIU d101199	ORF1 (Enterococcus faecalis)	66	41	309
207	2	2340	2597	gnl PIU e321893	envelope glycoprotein gp160 (human immunodeficiency virus type 1)	66	46	258
210	7	1358	3678	gnl 49318	ORF4 gene product (Bacillus subtilis)	66	46	321
217	8	5143	5355	gnl 49538	thrombin receptor (Cricetus longicaudatus)	66	38	213
220	4	3875	3642	gnl 466648	alternate name ORF of L23635 (Escherichia coli)	66	33	234

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
223	1	1070	138	[gnl pid e247187]	zinc finger protein (Bacteriophage phigle)	66	45	933
224	2	1864	2640	[gi 1176199]	putative ABC transporter subunit (Staphylococcus epidermidis)	66	41	777
243	1	3	872	[dnj AB000617.2]	[AB000617] YcdH (Bacillus subtilis)	66	45	870
268	2	891	568	[gi 517210]	putative transposase (Streptococcus pyogenes)	66	60	324
322	1	2	643	[gi 1499836]	[2n protease (Methanococcus jannaschii)]	66	40	642
5	10	13909	13178	[gi 1574292]	hypothetical (Haemophilus influenzae)	65	34	732
6	11	10465	11190	[gi 142854]	homologous to E. coli radC gene product and to unidentified protein from Staphylococcus aureus (Bacillus subtilis)	65	48	726
7	2	647	405	[pir C64146 C641]	hypothetical protein H10259 - Haemophilus influenzae (strain Rd KW20)	65	42	243
7	1	6246	6821	[gnl ptu d101323]	[yqhu (Bacillus subtilis)]	65	50	576
10	2	1873	1397	[gi 1163111]	[ORF-1 (Streptococcus pneumoniae)]	65	54	477
16	3	1428	2222	[gnl pid e325010]	hypothetical protein (Bacillus subtilis)	65	45	795
21	4	3815	3357	[gnl pid e314910]	hypothetical protein (Staphylococcus sciuri)	65	40	459
22	14	25776	26384	[gi 1121030]	[CpA (Actinobacillus pleuropneumoniae)]	65	42	609
43	2	1648	290	[gi 1044826]	[F14E5.1 (Caenorhabditis elegans)]	65	38	1359
48	13	10062	10856	[gi 1573390]	hypothetical (Haemophilus influenzae)	65	45	795
48	22	17521	16883	[gi 1573391]	hypothetical (Haemophilus influenzae)	65	37	619
48	25	19027	18533	[gnl pid e264484]	[YCR020C, Ien.215 (Saccharomyces cerevisiae)]	65	38	495
49	3	3856	5334	[gi 1480429]	putative transcriptional regulator (Bacillus stearothermophilus)	65	32	1479
50	6	5337	4519	[gi 171961]	[tRNA isopentenyl transferase (Saccharomyces cerevisiae)]	65	42	819
52	15	114728	15588	[gi 1499745]	[M. jannaschii predicted coding region MJ0912 (Methanococcus jannaschii)]	65	46	861
59	7	3963	4745	[gi 496514]	[orf zeta (Streptococcus pyogenes)]	65	42	783
68	3	2500	3483	[gi 887824]	[ORF.0310 (Escherichia coli)]	65	46	984
69	3	2171	1077	[gnl pid e111453]	unknown (Bacillus subtilis)	65	42	1095
69	7	6029	5125	[gi 809660]	[deoxyribose-phosphate aldolase (Bacillus subtilis)]	65	55	705
71	5	8516	9783	[gi 1573224]	[glycosyl transferase lgcC (GP.U1454.4) (Haemophilus influenzae)]	65	42	1248
72	8	7664	8527	[gnl pid e267589]	Unknown, highly similar to several spermidine synthases (Bacillus subtilis)	65	39	864

TABLE 2

S. pneumoniae - putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
76	5	5773	4097	gnl pid d101723	DNA REPAIR PROTEIN RECN (RECOMBINATION PROTEIN N) [Escherichia coli]	65	44	1677
76	9	8099	7875	gi 1574276	[exodeoxyribonuclease, small subunit (xseB) (Haemophilus influenzae)]	65	38	225
84	2	2870	2352	gi 2313188	[AE000532] conserved hypothetical protein (Helicobacter pylori)	65	41	519
86	15	14495	13407	gnl pid d101880	[3-dehydroquinase synthase (Synecocystis sp.)]	65	44	1089
87	3	3706	2423	gi 151259	[HMG-CoA reductase (EC 1.1.1.88) (Pseudomonas mevalonii)]	65	51	1284
88	3	2425	2736	gi 1098510	[unknown (Lactococcus lactis)]	65	30	312
89	2	1627	1007	gnl pid d102008	[AB001488] SIMILAR TO ORF14 OF ENTEROCOCCUS FAECALIS TRANSPOSON TN916. [Bacillus subtilis]	65	41	621
111	6	6635	6186	gnl pid e246063	[NM23/nucleoside diphosphate kinase (Xenopus laevis)]	65	50	450
116	1	3	1016	gnl pid d101125	[guanosine biosynthesis protein QueA (Synecocystis sp.)]	65	44	1014
123	1	69	389	gi 498839	[ORF2 (Clostridium perfringens)]	65	36	321
123	7	6522	7190	gi 1575577	[DNA-binding response regulator (Thermotoga maritima)]	65	39	669
125	3	3821	2859	gnl pid e257609	[sugar-binding transport protein (Anaerocellum thermophilum)]	65	47	963
137	12	8015	7818	gi 2182574	[AE000090] Y4pE (Rhizobium sp. NGR234)	65	41	198
147	4	5021	3885	gi 472329	[dihydrolipoamide acetyltransferase (Clostridium magnum)]	65	47	1137
148	2	1053	1931	gnl pid d101119	[yqgm (Bacillus subtilis)]	65	42	879
151	2	3212	4687	gi 304897	[EcoE type I restriction modification enzyme M subunit (Escherichia coli)]	65	50	1476
156	2	730	437	gi 310893	[membrane protein (Theileria parva)]	65	47	294
164	7	4256	4817	gi 410132	[ORFX8 (Bacillus subtilis)]	65	48	582
169	6	3192	3914	gi 1552737	[similar to purine nucleoside phosphorylase (deoD) (Escherichia coli)]	65	41	723
176	4	2951	2220	gnl pid e339500	[oligopeptide binding lipoprotein (Streptococcus pneumoniae)]	65	43	732
195	4	4556	1900	gi 1592142	[ABC transporter, probable ATP-binding subunit (Methanococcus jannaschii)]	65	40	657
196	1	160	1572	gnl pid d102004	[AB001488] PROBABLE UDP-N-ACETYLURACIDYLALANYL-D-GLUTAMYL-2, 6-DIAMINOLICASE (EC 6.3.2.15). (Bacillus subtilis)]	65	51	1413
204	2	2246	1215	gi 143156	[membrane bound protein (Bacillus subtilis)]	65	37	1032
210	4	1544	1891	gi 49315	[ORF1 gene product (Bacillus subtilis)]	65	48	348
242	2	1625	723	gi 1787540	[AE000226] f249; This 249 aaorf is 32 pct identical (8 gaps) to 244 residues of an approx. 272 aa protein AGAR_ECOLI SM: P42502 (Escherichia coli)]	65	42	903

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
284	1	1	900	[gi 559861	[c]ym [Plasmid pAD1]	65	36	900
304	1	2	574	[gnl pt0 e290934	[unknown [Mycobacterium tuberculosis]	65	52	573
315	1	2	1483	[gi 790694	[mannuronan C-5-epimerase [Azotobacter vinelandii]	65	57	1482
320	1	3	569	[gnl pt0 d102048	[K. aerogenes, histidine utilization repressor; p12380 (199) DNA binding [Bacillus subtilis]	65	46	567
358	1	1	309	[gnl pt0 e323508	[Y10S protein [Bacillus subtilis]	65	55	309
2	7	7571	6696	[gi 1498753	[nicotinamide-nucleotide pyrophosphorylase [Rhodospirillum rubrum]	64	47	876
6	6	5924	6802	[gnl pt0 d101111	[methionine aminopeptidase [Synechocystis sp.]	64	52	879
8	4	3417	3686	[gi 1045935	[DNA helicase II [Mycoplasma genitalium]	64	58	270
11	4	3249	2689	[gnl pt0 e265529	[orfB [Streptococcus pneumoniae]	64	46	561
15	7	6504	7145	[gi 1762328	[ycr59c/yig2 homolog [Bacillus subtilis]	64	45	642
22	11	9548	9895	[gnl pt0 d100581	[unknown [Bacillus subtilis]	64	38	348
22	10	122501	23174	[gi 289760	[cone ORF1 [Bacillus subtilis]	64	44	672
26	7	14375	14199	[gi 409286	[barU [Bacillus subtilis]	64	30	177
27	2	1510	1134	[gi 40795	[xdel methylase [Desulfovibrio vulgaris]	64	51	177
29	2	614	297	[gi 2326168	[type VII collagen [Mus musculus]	64	50	318
35	2	368	721	[pir JC1151 JC11	[hypothetical 20 kK protein (insertion sequence IS1131) - Agrobacterium tumefaciens (strain P022) plasmid T1	64	50	354
40	1	3	449	[gi 46970	[lep10 gene product [Staphylococcus epidermidis]	64	41	447
40	7	4683	4976	[gnl pt0 e325792	[A3000005] glucose kinase [Bacillus megaterium]	64	45	294
45	7	8068	6920	[gnl pt0 d102036	[subunit of ADP-glucose pyrophosphorylase [Bacillus stearothermophilus]	64	40	1149
51	2	301	1059	[gi 43985	[nifs-like gene [Lactobacillus delbrueckii]	64	54	759
51	11	15251	18197	[gi 2293260	[AF008220] DNA-polymerase III alpha-chain [Bacillus subtilis]	64	46	3147
53	3	1157	555	[gi 1574292	[hypothetical [Haemophilus influenzae]	64	47	603
58	2	4236	1606	[gi 1573826	[alanine-tRNA synthetase (alaS) [Haemophilus influenzae]	64	51	2631
66	1	3	1259	[gi 895749	[putative cellobiose phosphotransferase enzyme II' [Bacillus subtilis]	64	42	1257
68	5	5213	6556	[gi 436965	[malA] gene products [Bacillus stearothermophilus]	64	47	1344
69	6	5356	4949	[gnl pt0 d101316	[cdd [Bacillus subtilis]	64	52	408



TABLE 2  
S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
74	4	6948	5038	gi 726480	L-glutamine-D-fructose-6-phosphate amidotransferase (Bacillus subtilis)	64	50	1911
75	3	1283	1465	bbs 133379	TLS-CHOP-fusion protein (CHOP-C/EBP transcription factor, TLS-nuclear RNA-binding protein) (human, myxoid liposarcoma cells, Peptide Mutant, 462 aa) (Homo sapiens)	64	57	183
81	13	14016	14231	gi 143175	methanol dehydrogenase alpha-10 subunit (Bacillus sp.)	64	35	216
81	22	21851	22090	gnl pid d101315	YqfA (Bacillus subtilis)	64	44	240
87	11	10046	9300	gnl pid e323505	putative Pci1 protein (Bacillus subtilis)	64	43	747
98	7	5032	5706	gnl pid e233880	hypothetical protein (Bacillus subtilis)	64	38	675
105	1	2	1276	gi 1657501	similar to S. aureus mercury(II) reductase (Escherichia coli)	64	45	1275
113	7	5136	6410	gnl pid d101119	HLFS (Synechocystis sp.)	64	50	1275
119	1	2	1297	gnl pid e320520	hypothetical protein (Natronobacterium pharaonis)	64	37	1296
123	3	1125	2156	gnl pid e253284	ORF YDL244w (Saccharomyces cerevisiae)	64	40	1032
124	5	2331	1780	gnl pid d101884	hypothetical protein (Synechocystis sp.)	64	50	552
129	4	3467	2709	gnl pid d101314	YqeU (Bacillus subtilis)	64	52	759
131	1	152	3	gi 13377841	unknown (Bacillus subtilis)	64	42	150
137	11	7196	7549	pir JCL151 JC11	hypothetical 20.3K protein (insertion sequence IS113) - Agrobacterium tumefaciens (strain P022) plasmid T1	64	50	354
139	3	3226	2651	gi 2293301	(AF008220) YqB (Bacillus subtilis)	64	44	576
146	10	6730	5648	gi 1322245	mevalonate pyrophosphate decarboxylase (Rattus norvegicus)	64	45	1083
147	1	2	1018	gnl pid e137033	unknown gene product (Lactobacillus leichmannii)	64	46	1017
148	11	8430	8783	gi 2130630	(AF000430) dynein-like protein (Homo sapiens)	64	28	354
156	7	4113	3612	gnl pid d102050	transmembrane (Bacillus subtilis)	64	31	702
157	4	1299	2114	gnl pid d100892	homologous to Gln transport system permease proteins (Bacillus subtilis)	64	43	816
162	6	5880	6362	gi 517204	ORF1, putative 42 kDa protein (Streptococcus pyogenes)	64	58	483
164	11	9707	8769	gnl pid d100964	homologue of ferric aquibactin transport system permease protein FatD of V. anguillarum (Bacillus subtilis)	64	40	939
175	5	3906	4598	gi 534045	antiterminator (Bacillus subtilis)	64	39	693
189	10	6154	6507	gi 581307	response regulator (Lactobacillus plantarum)	64	33	354
191	4	3519	2863	gi 149520	[phosphoribosyl anthranilate isomerase (Lactococcus lactis)]	64	46	657

TABLE 2  
S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
202	1	76	1140	[gnl P1D e293806	[O-acetylhomoserine sulphydrylase (Leptospira meyeri)	64	47	1065
224	1	234	1571	[gi 15733193	[collagenase (pric) Haemophilus influenzae]	64	42	1336
231	3	291	647	[gi 40174	[ORF X (Bacillus subtilis)	64	43	357
253	3	709	1089	[pir JC1151 JC11	[hypothetical 20.3K protein (insertion sequence IS1131) - Agrobacterium tumefaciens (strain P022) plasmid T1	64	50	381
265	1	820	2	[gi 1377832	[unknown (Bacillus subtilis)	64	31	819
297	1	1	660	[gi 1590871	[collagenase (Methanococcus jannaschii)	64	48	660
328	1	263	21	[gi 992651	[Glnp (Saccharomyces cerevisiae)	64	41	243
5	4	8730	8098	[gi 556885	[unknown (Bacillus subtilis)	63	48	633
10	6	5178	4483	[gi 1573101	[hypothetical (Haemophilus influenzae)	63	40	696
12	11	9324	9902	[gi 806536	[membrane protein (Bacillus acidopullulicus)	63	42	579
15	10	8897	9187	[gi 722319	[unknown (Acetobacter xylinum)	63	40	291
17	2	1031	309	[gnl P1D e217602	[Pinu (Lactobacillus plantarum)	63	32	723
18	8	7778	6975	[gi 1377843	[unknown (Bacillus subtilis)	63	45	804
26	4	9780	7078	[gi 142440	[ATP-dependent nuclease (Bacillus subtilis)	63	46	2703
29	5	3488	4192	[gi 1377829	[unknown (Bacillus subtilis)	63	35	705
34	11	8830	7988	[gnl P1D d101198	[ONF8 (Enterococcus faecalis)	63	45	843
35	3	1187	876	[gi 722319	[unknown (Acetobacter xylinum)	63	39	312
48	15	112509	11691	[gi 1573389	[hypothetical (Haemophilus influenzae)	63	41	819
51	11	112719	12189	[gi 142450	[ahrC protein (Bacillus subtilis)	63	35	531
55	4	3979	5022	[gi 1708640	[YeeB (Bacillus subtilis)	63	41	1044
55	15	13669	14670	[gnl P1D e311502	[thioredoxine reductase (Bacillus subtilis)	63	44	1002
68	10	9242	8919	[sp P37686 Y1AY	[HYPOTHETICAL 40.2 KD PROTEIN IN AVTA-SELB INTERGENIC REGION (P302)	63	40	324
86	7	6558	5685	[gi 1574182	[lic-1 operon protein (licD) (Haemophilus influenzae)	63	41	870
88	8	6085	5180	[gi 2098719	[putative fibrial-associated protein (Actinomyces naeslundii)	63	43	906
96	8	5858	6484	[gi 1052803	[orf191b gene product (Streptococcus pneumoniae)	63	38	627
100	1	240	1940	[gi 7171	[fucosidase (Dictyostellium discoideum)	63	36	1701

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
104	4	3063	5765	gi 144985	phosphoenolpyruvate carboxylase [Corynebacterium glutamicum]	63	46	2703
106	8	9189	8554	gi 533099	endonuclease III [Bacillus subtilis]	63	45	636
122	6	4704	4886	gnl PID d101139	transposase [Synechocystis sp.]	63	39	183
128	7	4517	5203	gnl PID d101414	orf2 [Methanobacterium thermoautotrophicum]	63	50	687
137	4	963	1547	gnl 472920	V-type Na-ATPase [Enterococcus hirae]	63	27	585
142	7	4100	4585	gnl PID e313025	hypothetical protein [Bacillus subtilis]	63	44	486
159	5	1741	2571	gnl 1787043	(AE000184) (271; This 271 aa orf is 24 pct identical (16 gaps) to 265 residues of an approx. 272 aa protein YIDA_ECOLI SM: P09997 [Escherichia coli])	63	39	831
171	12	8803	14406	gnl PID e324918	IgA1 protease [Streptococcus sanguis]	63	48	5604
177	1	3	347	gi 1773150	hypothetical 14 kDa protein [Escherichia coli]	63	34	345
178	2	423	917	gnl 722339	unknown [Acetobacter xylinum]	63	41	495
178	3	794	1012	gi 1591582	cobalamin biosynthesis protein M [Methanococcus jannaschii]	63	36	219
195	1	1377	175	gnl PID e324217	ftsQ [Enterococcus hirae]	63	33	1203
234	5	1739	1527	gi 1591582	cobalamin biosynthesis protein M [Methanococcus jannaschii]	63	36	213
249	1	81	257	gi 1000453	TrcR [Bacillus subtilis]	63	41	177
283	1	127	1347	gi 396486	ORF8 [Bacillus subtilis]	63	44	1221
293	3	2804	3466	gnl 722339	unknown [Acetobacter xylinum]	63	37	663
311	1	905	486	gi 1877424	UDP-galactose 4-epimerase [Streptococcus mutans]	63	46	420
324	1	2	556	gi 1477741	histidine periplasmic binding protein P29 [Campylobacter jejuni]	63	36	555
365	1	219	13	gnl 2252843	(AF013293) No definition line found [Arabidopsis thaliana]	63	33	207
382	1	88	378	gnl 722339	unknown [Acetobacter xylinum]	63	40	291
385	3	364	158	gnl 2252843	(AF013293) No definition line found [Arabidopsis thaliana]	63	33	207
2	1	2495	288	gnl PID e325007	penicillin-binding protein [Bacillus subtilis]	62	42	2208
3	23	23374	24231	gnl PID e254993	hypothetical protein [Bacillus subtilis]	62	35	858
6	16	14320	13193	gnl PID e349614	nifs-like protein [Mycobacterium leprae]	62	37	1128
7	8	6819	7232	gnl PID d101324	YqhY [Bacillus subtilis]	62	32	414
7	19	15466	14207	gnl PID d101804	beta ketoacyl-acyl carrier protein synthase [Synechocystis sp.]	62	43	1260

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
7	21	17155	[gnl PI01e323514]	putative Fabp protein [Bacillus subtilis]	62	46	927
7	24	19526	[gi 1276434]	beta-ketacyl-ACP synthase III [Cuphea wrightii]	62	37	1008
12	7	5904	[gi 1573768]	A/G-specific adenine glycosylase (mutY) [Haemophilus influenzae]	62	43	1203
12	9	8032	[gi 1591587]	pantothenate metabolism flavoprotein [Methanococcus jannaschii]	62	33	762
15	11	9678	[pir JC1151 JC11]	hypothetical 20.3K protein (insertion sequence IS1131) - Agrobacterium tumefaciens (strain P022) plasmid T1	62	43	351
17	4	2609	[gi 1591081]	M. jannaschii predicted coding region MJ0374 [Methanococcus jannaschii]	62	43	168
17	5	3053	[gi 149570]	role in the expression of lactacin F, part of the laf operon [Lactobacillus sp.]	62	44	219
22	10	8627	[gnl PI01d100580]	similar to B. subtilis DnaM [Bacillus subtilis]	62	43	912
30	3	865	[gi 2314379]	[AE000627] ABC transporter, ATP-binding protein (yhcg) [Helicobacter pylori]	62	43	1179
33	5	2235	[gi 413976]	ipa-52r gene product [Bacillus subtilis]	62	44	600
38	11	5689	[gi 148231]	[o23] [Escherichia coli]	62	34	435
40	17	14272	[gnl PI01d101904]	hypothetical protein [Synechocystis sp.]	62	43	945
42	1	3	[gi 1146182]	putative [Bacillus subtilis]	62	41	309
44	2	1267	[gi 1786952]	[AE000176] o877; 100 pct identical to the first 86 residues of the 100 aa hypothetical protein fragment YBG9_ECOLI SM: p54746 [Escherichia coli]	62	43	2739
48	12	9732	[gi 662920]	repressor protein [Enterococcus faecalis]	62	32	429
51	8	5664	[gnl PI01e101153]	[StySKI] methylase [Salmonella enterica]	62	44	1518
52	3	2791	[gi 1183886]	integral membrane protein [Bacillus subtilis]	62	41	693
55	16	14702	[gnl PI01e313028]	hypothetical protein [Bacillus subtilis]	62	40	959
59	6	3418	[gi 2065483]	unknown [Lactococcus lactis lactis]	62	32	567
63	5	4997	[gi 149773]	pilin gene inverting protein (PivML) [Moraxella lacunata]	62	28	189
70	14	10002	[gi 992977]	[bplG] gene product [Bordetella pertussis]	62	45	718
71	13	18790	[gi 1280135]	coded for by C. elegans cDNA cm21e6; coded for by C. elegans cDNA cm01e2; similar to melibiose carrier protein (thiomethylgalactoside permease II) [Caenorhabditis elegans]	62	62	1593
71	28	32217	[gnl PI01d101312]	[yqcG] [Bacillus subtilis]	62	35	552
74	7	11666	[gi 1552753]	hypothetical [Escherichia coli]	62	38	1284

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Cuntig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
80	8	9370	9609	gnl PID d102002	(AB001488) FUNCTION UNKNOWN. [Bacillus subtilis]	62	46	240
97	10	9068	7041	gi 882463	[protein-N(pI)-phosphohistidine-sugar phosphotransferase (Escherichia coli)]	62	42	2028
98	4	2106	3268	gnl PID d101496	BraE (integral membrane protein) [Pseudomonas aeruginosa]	62	42	963
102	3	2823	3539	gnl PID e11010	hypothetical protein [Bacillus subtilis]	62	24	717
103	3	2795	1242	gnl PID d102049	H. influenzae hypothetical ABC transporter; P44808 (974) [Bacillus subtilis]	62	41	1554
111	2	2035	3462	gi 581297	NISP [Lactococcus lactis]	62	44	1428
112	4	3154	4080	gi 1574379	lic-1 operon protein (licA) [Haemophilus influenzae]	62	39	927
112	6	4939	5649	gi 1574381	lic-1 operon protein (licC) [Haemophilus influenzae]	62	39	711
124	3	1137	721	gi 1573024	anaerobic ribonucleoside-triphosphate reductase (nrdD) [Haemophilus influenzae]	62	45	417
124	6	3162	2329	gi 609076	leucyl aminopeptidase [Lactobacillus delbrueckii]	62	40	834
126	7	11073	7516	gnl PID d101163	ORF4 [Bacillus subtilis]	62	38	3558
129	6	4983	4540	pti S41509 S415	zinc finger protein ERF - Chilo iridescent virus	62	48	444
131	7	4510	4103	gi 1857245	unknown [Lactococcus lactis]	62	42	408
149	2	1923	2579	gi 1592142	ABC transporter, probable ATP-binding subunit [Methanococcus jannaschii]	62	41	657
149	7	5360	6055	gnl PID e123508	YioS protein [Bacillus subtilis]	62	40	696
156	1	450	238	gnl PID e254644	membrane protein [Streptococcus pneumoniae]	62	40	213
156	6	3606	2935	gnl PID d102050	transmembrane [Bacillus subtilis]	62	37	672
171	2	1779	2291	gi 103941	Ellis-B Sor PPS [Klebsiella pneumoniae]	62	35	513
172	2	385	723	gi 895750	putative cellobiose phosphotransferase enzyme fii [Bacillus subtilis]	62	39	339
173	3	2599	893	gi 1591732	cobalt transport ATP-binding protein O [Methanococcus jannaschii]	62	42	1707
179	2	492	1754	gi 1574071	H. influenzae predicted coding region H1038 [Haemophilus influenzae]	62	38	1263
181	6	2856	3707	gi 1777435	LacT [Lactobacillus casei]	62	42	852
185	2	2074	311	gi 2182197	(AE000073) Y4(N [Rhizobium sp. MCR214]	62	41	1764
200	2	1061	1984	gi 450566	transmembrane protein [Bacillus subtilis]	62	37	924
202	3	2583	1473	gi 42219	p35 gene product (AA 1 - 314) [Escherichia coli]	62	41	891
210	3	1374	1565	gi 49315	(ORF) gene product [Bacillus subtilis]	62	45	192

TABLE 2  
S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
211	1	3	971	gi1247402	mannose permease subunit III-Man (Escherichia coli)	62	43	969
223	2	1495	1034	gn1PID d101190	ORF2 (Streptococcus mutans)			
228	1	34	909	gi1530063	glycerol uptake facilitator (Streptococcus pneumoniae)	62	41	462
234	2	90	917	gi12293259	(AF008220) YqI (Bacillus subtilis)	62	44	876
282	5	1765	1487	gn1PID e276475	galactokinase (Arabidopsis thaliana)	62	38	828
335	1	1	159	gi11674231	(AE000052) Mycoplasma pneumoniae, hypothetical protein homolog; stellar to Swiss-Prot Accession Number P31555, from B. subtilis (Mycoplasma pneumoniae)	62	40	159
365	5	584	357	gi11573353	outer membrane integrity protein (OMA) (Haemophilus influenzae)	62	47	228
3	19	18550	19269	gi1606162	ORF_229 (Escherichia coli)	61	41	720
7	4	2725	3225	gi12114425	similar to Synchocystis sp. hypothetical protein, encoded by GenBank Accession Number D64006 (Bacillus subtilis)	61	42	501
17	6	3326	3054	gi1149569	lactacin F (Lactobacillus sp.)	61	43	273
44	3	4061	4957	gn1PID d101068	xylose repressor (Synchocystis sp.)	61	38	897
54	11	8388	7234	gn1PID d101329	YqJH (Bacillus subtilis)	61	42	1155
57	6	3974	6037	gn1PID d101316	YqK (Bacillus subtilis)	61	42	2064
58	5	7156	6565	sp P45169 POTC_	SPERMIDINE/PUTRESCINE TRANSPORT SYSTEM PERMEASE PROTEIN POTC	61	34	792
67	1	3	692	gi1537108	ORF_254 (Escherichia coli)	61	46	690
68	9	8816	7890	gi119501	PPL212 gene product (AA 1-188) (Lupinus polyphyllus)	61	41	927
70	15	10737	12008	gi1992976	bpIF gene product (Bordetella pertussis)	61	44	1272
72	11	9759	10202	gn1PID d101833	carboxymorsperaldine decarboxylase (Synchocystis sp.)	61	36	444
76	8	7881	7003	gn1PID d100305	farnesyl diphosphate synthase (Bacillus stearothermophilus)	61	45	879
87	4	4914	3697	gi1528991	unknown (Bacillus subtilis)	61	42	1218
87	13	11211	11361	gi1178968	(AE000407) methionyl-tRNA formyltransferase (Escherichia coli)	61	44	951
91	2	711	2989	gi1537080	ribonucleoside triphosphate reductase (Escherichia coli)	61	45	2259
105	3	2711	3499	gn1PID d101851	hypothetical protein (Synchocystis sp.)	61	44	789
115	6	7968	6473	gi1895747	putative cel operon regulator (Bacillus subtilis)	61	36	1491
123	8	7181	8518	gi1209527	protein histidine kinase (Enterococcus faecalis)	61	40	1338

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
126	6	7525	6725	gi 1787061	(AE00184) (271): This 271 aaorf is 24 pct identical (116 gaps) to 265 residues of an approx. 272 aa protein YIDA_ECOLI SM: P09997 [Escherichia coli]	61	38	801
128	1	1	639	gnl pid d101328	YqiY [Bacillus subtilis]	61	41	639
139	7	4794	5054	gi 1022726	unknown [Staphylococcus haemolyticus]	61	41	261
139	9	12632	5913	gnl pid e270016	beta-galactosidase [Thermotoga thermophilus]	61	41	6720
141	1	2552	42	gi 520541	penicillin-binding proteins 1A and 1B [Bacillus subtilis]	61	42	2511
148	16	12125	11424	gi 1552743	tetrahydrolipicolinate N-succinyltransferase [Escherichia coli]	61	42	702
162	3	4112	3456	gnl pid d101829	phosphoglycerate phosphatase [Synecocystis sp.]	61	30	657
172	3	727	1077	gnl pid d102048	B. subtilis, cellobiose phosphotransferase system, ceta; P46318 (220) [Bacillus subtilis]	61	44	351
177	3	1101	1772	gnl pid d100574	unknown [Bacillus subtilis]	61	43	672
202	2	1278	2585	gi 1045831	hypothetical protein (GB:U18965.6) [Mycoplasma genitalium]	61	36	1308
224	3	2782	3144	gi 1591144	M. jannaschii predicted coding region MJ0440 [Methanococcus jannaschii]	61	30	363
225	4	3395	3766	gi 1552774	hypothetical [Escherichia coli]	61	40	372
249	2	212	802	gi 1000453	Trer [Bacillus subtilis]	61	42	591
254	2	841	484	gnl pid d100417	ORF120 [Escherichia coli]	61	36	360
257	1	3	350	gnl pid e255315	unknown [Mycobacterium tuberculosis]	61	42	348
293	4	3971	3657	pat JC1151 JC11	hypothetical 20.3K protein (insertion sequence IS111) - Agrobacterium tumefaciens (strain P022) plasmid T1	61	45	315
301	1	949	17	gi 2291209	(AF016424) contains similarity to acyltransferases [Caenorhabditis elegans]	61	33	933
373	1	1066	287	gi 393396	Tb-292 membrane associated protein [Trypanosoma brucei subgroup]	61	38	780
3	24	24473	24955	gi 1537093	ORF_0153b [Escherichia coli]	60	27	483
6	5	4636	5739	gi 2293258	(AF008220) YcoI [Bacillus subtilis]	60	35	1104
6	12	11936	11187	gi 293017	ORF3 (put.): putative [Lactococcus lactis]	60	44	750
17	13	6708	6484	gi 149569	Lactacin F [Lactobacillus sp.]	60	32	225
18	7	6977	5670	gi 1788140	(AE000278) o481: This 481 aaorf is 35 pct identical (19 gaps) to 309 residues of an approx. 856 aa protein MOI1_HUMAN SM: P46087 [Escherichia coli]	60	43	1308
20	15	15878	17167	gnl pid d100584	unknown [Bacillus subtilis]	60	44	1290

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
22	1	1	243	gnl PID d102050	transmembrane (Bacillus subtilis)	60	36	243
32	10	8296	8964	gi 2293275	[AF008220] YraG (Bacillus subtilis)	60	37	669
38	15	8837	9697	gi 40023	B. subtilis genes rpmH, rnpA, 50kd, gidA and gidB (Bacillus subtilis)	60	35	861
43	6	8610	5944	gi 171787	protein kinase 1 (Saccharomyces cerevisiae)	60	36	2667
44	1	1	1269	gnl PID e235823	unknown (Schizosaccharomyces pombe)	60	44	1269
45	10	11138	110368	gi 397488	1,4-alpha-glucan branching enzyme (Bacillus subtilis)	60	43	771
48	19	15766	14378	gnl PID e205173	orf1 (Lactobacillus helveticus)	60	39	1389
48	21	16727	16951	gnl PID d102041	[AB002668] unnamed protein product (Haemophilus actinomycetemcomitans)	60	32	225
50	1	2	898	gnl PID e246537	[OKF286] protein (Pseudomonas stutzeri)	60	31	897
62	2	638	1177	gnl PID d100587	unknown (Bacillus subtilis)	60	42	540
68	4	3590	5203	gi 1573583	H. influenzae predicted coding region H10594 (Haemophilus influenzae)	60	36	1614
70	11	5781	6182	gnl PID d102014	[AB001488] SIMILAR TO YDFR GENE PRODUCT OF THIS ENTRY (YDFR_BACSU).	60	33	402
70	12	6143	8133	gnl PID e124970	hypothetical protein (Bacillus subtilis)	60	38	1791
71	8	11701	14157	gi 580866	[ipa-12d] gene product (Bacillus subtilis)	60	33	2457
74	8	12509	11664	gnl PID d101832	phosphatidate cytidyltransferase (Synechocystis sp.)	60	45	846
76	4	4116	3367	gi 2352096	orf; similar to serine/threonine protein phosphatase (Fervidobacterium islandicum)	60	39	750
80	4	7372	7665	gi 1786420	[AE000131] 186; 100 pct identical to GB: ECODINJ_6 ACCESSION: D38582 (Escherichia coli)	60	30	294
81	6	4071	4522	gi 147402	mannose permease subunit III-Man (Escherichia coli)	60	35	450
86	1	940	155	gi 143177	putative (Bacillus subtilis)	60	26	786
92	1	1	192	gi 196348	homoserine transsuccinylase (Escherichia coli)	60	45	192
93	14	10619	9384	gi 1788389	[AE000297] o364; This 364 aa orf is 33 pct identical (9 gaps) to 331 residues of an approx. 416 aa protein MTRC_NEIGO SW. P43505 (Escherichia coli)	60	27	1236
94	5	5548	8121	gnl PID e29895	[AJ000496] cyclic nucleotide-gated channel beta subunit (Rattus norvegicus)	60	50	2574
97	7	5396	4531	gi 1591396	'transketolase' (Methanococcus jannaschii)	60	43	864
102	2	2081	2813	gnl PID e120929	hypothetical protein (Mycobacterium tuberculosis)	60	43	753



TABLE 2  
S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
106	9	9773	9183	[gnl PID e334782	YlcN protein (Bacillus subtilis)	60	31	591
113	8	6361	6837	[gi 466875	[nifu; B1496_C1_157 (Mycobacterium leprae)	60	43	477
115	2	2755	524	[gnl PID e328143	(AJ000337) Glucosidase II (Homo sapiens)	60	32	2232
122	7	4763	5068	[gnl PID d101876	transposase (Synechocystis sp.)	60	39	306
127	8	4510	5283	[gi 777938	Pgm (Treponema pallidum)	60	38	774
138	4	3082	2672	[gnl PID e325196	hypothetical protein (Bacillus subtilis)	60	36	411
139	3	177	4	[gnl PID d100680	ORF (Thermus thermophilus)	60	39	174
139	11	14520	13009	[gi 537145	ORF_437 (Escherichia coli)	60	30	1512
140	2	2592	3249	[gi 1209527	protein histidine kinase (Enterococcus faecalis)	60	37	1344
141	1	210	1049	[gi 461181	E5 ORF from bp 3842 to 4081; putative (Human papillomavirus type 33)	60	34	840
141	5	5368	6405	[gi 45362	tyrosine-sensitive DAP synthase (arof) (Escherichia coli)	60	41	1038
142	6	3558	4049	[gi 600711	putative (Bacillus subtilis)	60	37	492
148	10	7742	8713	[gnl PID e330322	hypothetical protein (Bacillus subtilis)	60	27	972
153	5	3667	4278	[gi 2293322	(AF008220) branch-chain amino acid transporter (Bacillus subtilis)	60	42	612
155	1	1413	748	[gi 2103504	putative UDP-glucose dehydrogenase (Escherichia coli)	60	40	666
158	3	3116	2472	[gnl PID d100872	a negative regulator of pho regulon (Pseudomonas aeruginosa)	60	37	645
159	3	778	1386	[gnl PID e308090	product highly similar to Bacillus anthracis CepA protein (Bacillus subtilis)	60	48	609
163	7	8049	8468	[gnl PID d101313	YqoN (Bacillus subtilis)	60	38	420
170	3	4170	2688	[gi 3574179	H. influenzae predicted coding region Hfl244 (Haemophilus influenzae)	60	39	1443
171	7	4717	5901	[gi 606076	ORF_0384 (Escherichia coli)	60	44	1185
183	3	2440	2135	[gi 1877427	repressor (Streptococcus pyogenes phage T12)	60	38	306
191	10	9444	8428	[gi 415664	metabolite control protein (Bacillus megaterium)	60	42	1017
200	1	139	1083	[gi 438462	transmembrane protein (Bacillus subtilis)	60	37	945
201	3	3895	1928	[gi 475112	enzyme Habc (Pedococcus pentosaceus)	60	39	1968
214	15	10910	10439	[gi 1573407	hypothetical (Haemophilus influenzae)	60	39	492
218	4	2145	2363	[gi 608520	myosin heavy chain kinase A (Dictyostelium discoideum)	60	31	219

TABLE 2  
S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
226	4	2518	2351	[gi14337705]	hyaluronidase [Streptococcus pneumoniae]	60	53	168
242	1	725	3	[gi143398]	Sor regulator [Klebsiella pneumoniae]	60	41	723
245	1	1	288	[gi1304897]	EcoE type I restriction modification enzyme M subunit [Escherichia coli]	60	56	288
251	1	905	45	[gi1671632]	unknown [Staphylococcus aureus]	60	36	861
259	1	969	87	[gi1353794]	rgg [Streptococcus gordonii]	60	32	888
260	2	1492	1662	[pir1311840]S318	probable transposase - Bacillus steatothermophilus	60	26	171
274	1	836	96	[gi13592173]	N-ethylmaleine chlorohydrolyase [Methanococcus jannaschii]	60	40	741
308	1	463	2	[gi13787397]	[AE000214] o157 [Escherichia coli]	60	43	462
318	1	3	308	[gnl1p1d]e137594	xerC recombinase [Lactobacillus leichmannii]	60	42	306
344	1	73	522	[gi1509672]	repressor protein [Bacteriophage Tuc2009]	60	32	450
5	1	576	4	[gi12293147]	[AF008220] YcM [Bacillus subtilis]	59	31	573
7	22	18140	17142	[gnl1p1d]e280724	unknown [Mycobacterium tuberculosis]	59	39	999
10	1	1413	4	[gi1353880]	isialidase L [Macrobactella decoral]	59	41	1410
15	6	6463	5156	[gi1580841]	[F1] [Bacillus subtilis]	59	35	1308
22	2	479	1393	[gi142469]	lals operon regulatory protein [Bacillus subtilis]	59	34	915
22	5	2698	4614	[gnl1p1d]e280623	PCPA [Streptococcus pneumoniae]	59	44	1917
30	1	208	558	[gnl1p1d]e233868	hypothetical protein [Bacillus subtilis]	59	37	351
30	4	3678	2455	[gnl1p1d]e202290	unknown [Lactobacillus sakei]	59	33	1224
35	13	12201	11071	[gnl1p1d]e238664	hypothetical protein [Bacillus subtilis]	59	35	1131
35	14	13288	12182	[gi1457647]	Cap8M [Staphylococcus aureus]	59	39	1107
36	18	18076	17897	[gi1500535]	M. jannaschii predicted coding region MJ1635 [Methanococcus jannaschii]	59	33	180
38	12	6172	7137	[gi12293239]	[AF008220] YcM [Bacillus subtilis]	59	34	966
42	3	1952	3361	[gi1684845]	[pin1] [Canis familiaris]	59	40	1410
50	3	2678	1728	[gnl1p1d]d101329	[YcM] [Bacillus subtilis]	59	41	951
56	5	1870	2388	[gnl1p1d]e137594	xerC recombinase [Lactobacillus leichmannii]	59	41	519
61	6	6812	5628	[gnl1pin]e11516	amlnutransferase [Bacillus subtilis]	59	40	1185
67	5	2382	1023	[gi1146190]	[2-keto-3-deoxy-6-phosphogluconate aldolase [Bacillus subtilis]	59	36	642

TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
69	10	8567	8899	gi 1573628	anthranilate kinase (coaA) [Haemophilus influenzae]	59	38	333
87	12	11183	10055	gnl pid e323504	putative Fmu protein [Bacillus subtilis]	59	44	1329
113	14	11327	15894	gi 1673731	[AE000010] Mycoplasma pneumoniae, fructose-permease 118C component; similar to Swiss-Prot Accession Number P20966, from E. coli [Mycoplasma pneumoniae]	59	43	1968
115	8	8766	8521	gi 1590886	[M. jannaschii predicted coding region MJ0110 [Methanococcus jannaschii]	59	38	246
119	2	1966	1526	gnl pid e209005	homologous to ORF2 in nrDEF operons of E. coli and S. typhimurium [Lactococcus lactis]	59	43	441
128	17	11348	13118	gnl pid e279632	unknown [Mycobacterium tuberculosis]	59	38	261
140	22	121903	23388	gi 482922	protein with homology to pail repressor of B. subtilis [Lactobacillus delbrueckii]	59	40	516
148	13	9697	9014	gnl pid d102005	[AB001488] FUNCTION UNKNOWN, SIMILAR PRODUCT IN H. INFLUENZAE AND SYNECHOCYSTIS, [Bacillus subtilis]	59	32	684
149	10	7213	8244	gi 710422	[omp-binding-factor 1 [Staphylococcus aureus]	59	40	1032
164	9	6993	6013	gnl pid d100965	ferric anguibactin-binding protein precursor FatB of V. anguillarum [Bacillus subtilis]	59	41	981
164	12	8836	7823	gnl pid d100964	homologue of ferric anguibactin transport system permease protein FatC of V. anguillarum [Bacillus subtilis]	59	35	1014
177	2	401	1072	gi 289759	coded for by C. elegans cDNA CE2G3 [GenBank:214728]; putative [Caenorhabditis elegans]	59	40	672
177	7	3841	4200	gi 2313445	[AE000551] H. pylori predicted coding region HP0342 [Helicobacter pylori]	59	38	360
183	4	2768	2508	gi 509672	repressor protein [Bacteriophage Tuc2009]	59	50	261
186	6	3398	2820	gi 606080	[ORF_0290; Geneplot suggests frameshift linking to o267, not found [Escherichia coli]	59	38	579
190	3	3120	1711	gi 1613768	histidine protein kinase [Streptococcus pneumoniae]	59	32	1410
194	2	1621	1019	gnl pid d100579	unknown [Bacillus subtilis]	59	40	603
198	7	5205	4306	gnl pid e313073	hypothetical protein [Bacillus subtilis]	59	38	900
220	5	4362	3958	gnl pid d101322	YqjL [Bacillus subtilis]	59	46	405
242	3	1573	2367	gi 1787045	[AE000184] {308; This 308 aa ort is 15 pct identical (35 gaps) to 305 residues of an approx. 296 aa protein PFLC_EC015W; P32675 [Escherichia coli]	59	42	795
247	2	1154	1480	gi 40073	ORF107 [Bacillus subtilis]	59	39	327

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S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
256	1	868	2	gnl PID d101924	hemolysin [Synecocystis sp.]	59	39	867
258	1	65	820	gi 2246532	ORF 73, contains large complex repeat CR 73 (Kaposi's sarcoma-associated herpesvirus)	59	20	756
270	1	386	1126	gnl PID d102092	YfnB [Bacillus subtilis]	59	40	741
281	1	552	166	gi 666062	putative [Lactococcus lactis]	59	31	387
309	1	3	479	gi 405879	yeiM [Escherichia coli]	59	38	477
363	1	2	1894	gi 915208	gastric mucin [Sus scrofa]	59	31	1893
387	2	425	84	gi 160671	S antigen precursor [Plasmodium falciparum]	59	44	342
5	6	11223	10465	gnl PID d101812	LumQ [Synecocystis sp.]	58	29	759
29	4	2098	3513	gnl PID d100479	Na <sup>+</sup> -ATPase subunit J [Enterococcus hirae]	58	39	1416
30	5	4058	3651	gi 39478	ATP binding protein of transport ATPases [Bacillus firmus]	58	34	408
33	6	2983	2210	gnl PID d101164	unknown [Bacillus subtilis]	58	45	774
36	8	5316	6179	gi 518679	orf [Bacillus subtilis]	58	32	864
43	5	5926	3971	gi 1788150	[AE000278] protease II [Escherichia coli]	58	37	1956
46	5	3704	5221	gnl PID d267329	unknown [Bacillus subtilis]	58	42	1518
48	14	11722	11066	gnl PID d101771	thiamin biosynthetic bifunctional enzyme [Synecocystis sp.]	58	34	657
52	1	1229	3	gnl PID d101291	reductase [Pseudomonas aeruginosa]	58	35	1227
53	2	702	412	gi 2333357	[AF000545] cytochrome c biogenesis protein (ccda) [Helicobacter pylori]	58	25	291
58	4	6586	5498	gi 147329	transport protein [Escherichia coli]	58	41	1089
69	5	4934	3807	gnl PID d11492	unknown [Bacillus subtilis]	58	41	1128
71	27	31357	32777	gi 2408014	hypothetical protein [Schizosaccharomyces pombe]	58	33	921
72	4	3586	2882	gi 18694	nodulin-21 (AA 1-201) [Glycine max]	58	34	705
74	3	4917	4230	gi 2293252	[AF008220] ymo [Bacillus subtilis]	58	33	708
79	4	4594	1422	gi 1217989	ORF3 [Streptococcus pneumoniae]	58	44	1173
87	8	10585	8171	gi 882711	exonuclease V alpha-subunit [Escherichia coli]	58	38	2415
86	17	16017	15337	gi 47642	[5-dehydroquinase hydrolyase (3 dehydroquinase) (Salmonella typhi)]	58	32	681
97	2	931	560	gi 153794	lrgg [Streptococcus gordonii]	58	32	372

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S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
108	2	358	2724	gi 537020	wacB gene product [Escherichia coli]	58	37	2367
111	5	4593	5240	gi 1592142	ABC transporter, probable ATP-binding subunit [Methanococcus jannaschii]	58	36	648
120	3	4421	5110	gnl PID d101320	YggX [Bacillus subtilis]	58	47	690
1	16	13131	12673	gi 662919	ONF U [Enterococcus hirae]	58	42	459
132	3	6174	4939	gi 1800301	macrolide-efflux determinant [Streptococcus pneumoniae]	58	35	1236
133	1	111	890	gnl PID e269488	Unknown [Bacillus subtilis]	58	36	780
160	11	8615	9865	gi 471901	ORF1 [Lactococcus lactis]	58	39	1251
161	6	6268	6849	gnl PID d101024	DJ-1 protein [Homo sapiens]	58	32	582
169	1	214	2	gnl PID d100447	translation elongation factor-3 [Chlorella virus]	58	31	213
187	1	487	2	gi 475114	regulatory protein [Pediococcus pentosaceus]	58	38	486
187	6	4384	4620	gi 167475	decellation-related protein [Craterostigma plantagineum]	58	55	237
190	2	1464	1640	gnl PID e246727	competence pheromone [Streptococcus gordonii]	58	38	177
192	2	2012	1344	gnl PID d100556	rat GCP160 [Rattus rattus]	58	44	669
206	1	1292	696	gnl PID e202579	product similar to Mrba [Lactobacillus sake]	58	35	597
216	2	2333	555	gnl PID e125036	hypothetical protein [Bacillus subtilis]	58	33	1779
217	5	5250	4321	gi 466474	cellobiose phosphotransferase enzyme II' [Bacillus stearothermophilus]	58	38	930
217	7	5636	5106	gnl PID d102048	B. subtilis cellobiose phosphotransferase system celB; P46317 (1998)	58	44	531
232	1	2	811	gi 1573777	cell division ATP-binding protein (ftsE) [Haemophilus influenzae]	58	39	810
264	1	2	715	gi 1971330	Nata [Bacillus subtilis]	58	32	714
280	1	33	767	gi 11786187	[AE000111] hypothetical 29.6 kD protein in thrC-catB intergenic region [Escherichia coli]	58	31	735
306	1	845	3	gnl PID e134780	YibL protein [Bacillus subtilis]	58	47	843
360	3	1556	1092	gp 46351 V2G0	HYPOTHETICAL 45.4 KD PROTEIN IN THIAMINASE I 5' REGION [Escherichia coli]	58	32	465
363	5	2160	1867	gi 160671	IS antigen precursor [Plasmodium falciparum]	58	51	294
372	1	806	3	gi 193394	Tb-291 membrane associated protein [Trypanosoma brucei subgroup]	58	37	804
382	2	749	519	gnl JC1151 JC11	hypothetical 20.3K protein (insertion sequence IS1131) - Agrobacterium tumefaciens (strain P022) plasmid T1	58	41	231

TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
3	9	8409	7471	gi 1499745	M. jannaschii predicted coding region MJ0912 (Methanococcus jannaschii)	57	38	939
10	10	7674	7507	gi 1737169	homologue to SKP1 (Arabidopsis thaliana)	57	30	168
11	1	2	412	gnl P101d100139	ORF (Acetobacter pasteurianus)	57	42	411
31	4	2032	1388	gi 2293213	[AF008220] YtpR (Bacillus subtilis)	57	37	645
33	11	6931	6449	gnl P101e24949	hypothetical protein (Bacillus subtilis)	57	36	483
45	5	5446	5060	gi 1592204	phosphoserine phosphatase (Methanococcus jannaschii)	57	44	387
49	7	6523	7632	gi 155369	PTS enzyme-II fructose (Xanthomonas campestris)	57	35	1110
52	6	4520	6850	gi 1574144	single-stranded-DNA-specific exonuclease (recJ) (Haemophilus influenzae)	57	35	2331
53	5	2079	1795	gi 1843580	replicase-associated polypeptide (coat blue dwarf virus)	57	46	285
63	6	5312	4995	gi 2182608	[AE000094] Y4rJ (Rhizobium sp. NGR234)	57	39	318
72	15	11388	11059	gnl P101d100892	homologous to SwissProt:YIDA_ECOLI hypothetical protein (Bacillus subtilis)	57	40	825
79	2	2561	1815	gnl P101d100965	homologue of MADPH-flavin oxidoreductase Fp of V. harveyi (Bacillus subtilis)	57	44	747
82	9	9596	9763	gi 1206045	short region of similarity to glycerophosphoryl diester phosphodiesterases (Caenorhabditis elegans)	57	35	168
86	16	15371	14493	gi 1787983	[AE000264] o288: 92 pct identical (11 gaps) to 222 residues of (fragment YD18_ECOLI SW: P28744 (223 aa) (Escherichia coli)	57	34	879
93	3	1695	1177	gi 1500003	mutator mutT protein (Methanococcus jannaschii)	57	33	519
96	6	3026	4519	gi 559882	threonine synthase (Arabidopsis thaliana)	57	43	1494
99	14	17211	18212	gi 1773349	BIRA protein (Bacillus subtilis)	57	44	1002
112	8	7448	7903	gi 1591393	M. jannaschii predicted coding region MJ0678 (Methanococcus jannaschii)	57	30	456
113	16	18627	18328	plr A45605 A456	mature-parasite-infected erythrocyte surface antigen HESA - plasmodium falciparum	57	22	300
123	2	343	1110	plr F64149 F641	hypothetical protein H10355 - Haemophilus influenzae (strain Rd KW20)	57	38	768
123	4	2108	2804	gnl P101d102148	[AB001684] sulfate transport system permease protein (Chlorella vulgaris)	57	39	777
127	10	6477	5507	gi 1573082	nitrogenase C (nifC) (Haemophilus influenzae)	57	35	891
128	13	9251	9790	gi 153692	pneumolysin (Streptococcus pneumoniae)	57	38	540
131	4	2139	1363	gi 147081	magD gene product (AA 1-250) (Escherichia coli)	57	36	777

TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
136	1	214	1221	[gb 148453]	[SpaA-endocarditis immunodominant antigen (Streptococcus sobrinus, MUCOB 263, Peptide, 1566 aa) (Streptococcus sobrinus)]	57	44	1008
140	25	28701	26851	[gi 505576]	[beta-glucoside permease (Bacillus subtilis)]	57	38	1851
141	6	6395	7438	[gi 995560]	[unknown (Schizosaccharomyces pombe)]	57	41	1044
144	3	3231	2785	[gnl PID d100139]	[ORF (Acetobacter pasteurianus)]	57	42	447
155	4	5454	4564	[gi 600431]	[glycosyl transferase (Erwinia amylovora)]	57	34	891
159	9	4877	5854	[ui 290509]	[ol307 (Escherichia coli)]	57	35	978
167	11	9710	9249	[gnl PID d100139]	[ORF (Acetobacter pasteurianus)]	57	42	462
171	6	4023	4436	[gi 167402]	[mannose permease subunit III-Man (Escherichia coli)]	57	29	414
178	4	2170	1076	[gnl PID d102004]	[TAB001488] ATP-DEPENDENT RNA HELICASE DEAD HOMOLOG (Bacillus subtilis)]	57	39	1095
190	1	145	1455	[gi 169420]	[export/processing protein (Lactococcus lactis)]	57	30	1311
198	1	298	95	[gi 522268]	[unidentified ORF22 (Bacteriophage BIL67)]	57	36	204
203	2	3195	2110	[gnl PID e281915]	[orf c0100] (Sulfolobus solfataricus)]	57	41	1086
205	1	40	507	[gi 1039527]	[E11A-man (Lactobacillus curvatus)]	57	28	468
214	7	4243	1797	[gnl PID d102049]	[H. influenzae, ribosomal protein alanine acetyltransferase, P44305 (189) (Bacillus subtilis)]	57	48	447
268	1	1767	1276	[gi 43979]	[L. curvatus small cryptic plasmid gene for rep protein (Lactobacillus curvatus)]	57	36	492
351	1	324	34	[gnl PID e275871]	[T03F6.B (Caenorhabditis elegans)]	57	31	291
386	1	226	2	[gi 160671]	[S antigen precursor (Plasmodium falciparum)]	57	45	225
5	5	10486	8777	[gi 405857]	[yehu (Escherichia coli)]	56	33	1710
8	5	3674	3910	[gi 467199]	[pkac; L518_F1.2 (Mycobacterium leprae)]	56	39	237
10	3	1442	1874	[gnl PID d101907]	[sodium-coupled permease (Synechocystis sp.)]	56	36	1569
21	1	1880	333	[gi 2313949]	[AE000593] osmoprotection protein (proXA) (Helicobacter pylori)]	56	33	1548
22	29	21968	22456	[gnl PID d102001]	[TAB001488] PROBABLE ACETYLTRANSFERASE (Bacillus subtilis)]	56	37	489
27	1	1361	1	[gi 215132]	[ae59 (525) (Bacteriophage lambda)]	56	30	1359
28	9	4667	4278	[gi 1592090]	[DNA repair protein RAD2 (Methanococcus jannaschii)]	56	29	390
33	1	3	386	[gnl PID d100139]	[ORF (Acetobacter pasteurianus)]	56	41	384

TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	Match accession	Match gene name	% sim	% ident	length (nt)
36	7	5122	5397	[pir PQ0051 PQ00	hypothetical protein (proC 3' region) - Pseudomonas aeruginosa (strain PAO) (fragment)	56	28	276
40	3	3137	4318	[gi 18800301	macrolide efflux determinant [Streptococcus pneumoniae]	56	27	1182
40	16	12511	13191	[gnl PID e217602	PinU [Lactobacillus plantarum]	56	38	681
48	17	13375	13323	[gi 143729	transcription activator [Bacillus subtilis]	56	35	753
75	4	1674	2594	[gnl PID d102036	membrane protein [Bacillus stearothermophilus]	56	25	921
85	3	1842	1459	[gnl PID d100139	ORF [Acetobacter pasteurianus]	56	41	384
89	7	5815	4940	[gi 853777	product similar to E coli PRA2 protein [Bacillus subtilis]	56	42	876
105	2	1160	2718	[gnl PID d101913	hypothetical protein [Synecocystis sp.]	56	37	1359
112	3	2151	3194	[gi 537201	ORF_0345 [Escherichia coli]	56	31	1044
113	4	2754	2963	[gnl PID d100140	ORF [Plum pox virus]	56	28	210
122	3	1203	2054	[gi 1649035	high-affinity periplasmic glutamine binding protein [Salmonella typhimurium]	56	30	852
124	8	1539	3694	[gnl PID e248893	unknown [Mycobacterium tuberculosis]	56	27	246
125	4	4403	4107	[gnl PID d100247	human non-muscle myosin heavy chain (Homo sapiens)	56	32	297
127	11	6608	6605	[gi 2182397	[AE000073] Y4tN [Rhizobium sp. MGR234]	56	35	204
134	5	4769	3849	[gnl PID d101870	hypothetical protein [Synecocystis sp.]	56	39	921
137	10	6814	7245	[gi 1592011	sulfate permease (cysA) [Methanococcus jannaschii]	56	34	432
142	8	5019	4582	[pit A47071 A470	orf1 immediately 5' of nifs - Bacillus subtilis	56	29	438
146	8	4676	3660	[gnl PID d101911	hypothetical protein [Synecocystis sp.]	56	32	1017
148	3	1906	2739	[gnl PID d101099	phosphate transport system permease protein psta [Synecocystis sp.]	56	36	834
150	4	4449	2743	[gnl PID e304628	probably site-specific recombinase of the resolvase family of enzymes [Bacteriophage TP21]	56	27	1707
172	3	2	208	[gi 1187791	[AE000249] f117; This 317 aa orf is 27 pct identical (16 gaps) to 301 residues of orf - approx. 320 aa protein YXXC_BACSU SW. P39140 [Escherichia coli]	56	34	207
172	7	4979	5668	[gi 396293	similar to Bacillus subtilis hypoth. 20 kDa protein, in tsr 3' region [Escherichia coli]	56	40	690
186	7	3732	3367	[gi 1732200	PTS permease for mannose subunit I [Phan [Vibrio furnissii]	56	36	366
187	2	2402	819	[pir SS7904 SS79	virR49 protein - Streptococcus pyogenes (strain CS101, serotype M49)	56	35	1584



TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
204	3	2772	2239	gi 606376	ORF_0162 [Escherichia coli]	56	35	534
206	2	3142	1633	gi 559861	clm [Plasmid PAD1]	56	38	1710
219	3	1689	1096	gi 1146197	putative [Bacillus subtilis]	56	27	594
230	2	409	1485	pir C60328 C603	hypothetical protein 2 (sr 5' region) - Streptococcus mutans (strain ON2175, serotype 1)	56	40	1077
233	4	2930	3268	gi 1041785	phoptry protein [Plasmodium yoelii]	56	24	339
273	2	1543	2724	gi 143089	lep protein [Bacillus subtilis]	56	32	1182
353	1	1	516	gnl PID j35000	hypothetical protein [Bacillus subtilis]	56	41	516
359	1	87	641	gi 1786952	(AE000176) 0877; 100 pct identical to the first 86 residues of the 100 aa hypothetical protein fragment Y8GB_ECOLI SM: P54746 [Escherichia coli]	56	46	555
363	7	4482	4198	gi 1573353	outer membrane integrity protein (colA) [Haemophilus influenzae]	56	38	285
376	1	2	508	gnl PID j375031	hypothetical protein [Bacillus subtilis]	56	33	507
18	1	836	177	gnl PID j100872	le negative regulator of pho regulon [Pseudomonas aeruginosa]	55	31	660
28	4	1824	1618	gnl PID j316518	STAT protein [Dictyostelium discoideum]	55	40	207
29	6	4496	5041	gi 1088261	unknown protein [Anabaena sp.]	55	31	546
38	16	9695	10702	gi 580905	B subtilis genes rpmII, rnpA, 50kd, gida and gldb [Bacillus subtilis]	55	31	1008
49	5	5727	6182	gi 1786951	(AE000176) heat-responsive regulatory protein [Escherichia coli]	55	29	456
51	4	2381	3241	gnl PID j101293	Ybba [Bacillus subtilis]	55	42	861
52	9	9640	10866	gi 153016	ORF 419 protein [Staphylococcus aureus]	55	23	1227
53	4	1813	1349	gi 896042	ospF [Borrelia burgdorferi]	55	30	465
60	5	4794	5756	gi 1499876	magnesium and cobalt transport protein [Methanococcus jannaschii]	55	38	963
71	9	14176	15408	gi 1857120	glycosyl transferase [Neisseria meningitidis]	55	41	1233
75	6	3189	4229	gnl PID j209890	NAD alcohol dehydrogenase [Bacillus subtilis]	55	44	1041
108	10	10488	9820	gnl PID j324997	hypothetical protein [Bacillus subtilis]	55	36	669
113	12	12273	13037	gnl PID j11496	unknown [Bacillus subtilis]	55	34	765
113	11	13007	13945	gi 1573423	1-phosphofructokinase (fruk) [Haemophilus influenzae]	55	39	939
126	5	6764	5907	gi 1750133	(AE000446) hypothetical 29.7 kd protein in bpaA-gybB intergenic region [Escherichia coli]	55	37	858

TABLE 2

S. pneumoniae Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	Match accession	Match gene name	% sim	% ident	Length (nt)
129	3	2719	902	gnl PID d101425	P2-peptidase [Bacillus licheniformis]	55	35	1818
138	3	2593	1610	gnl 142833	ORF2 [Bacillus subtilis]	55	37	984
140	6	6916	5633	gnl PID d100964	homologue of hypothetical protein in a rapamycin synthesis gene cluster of Streptomyces hygroscopicus [Bacillus subtilis]	55	26	1284
147	3	3854	2136	gnl 472330	dihydrolipoamide dehydrogenase [Clostridium magnum]	55	39	1719
147	10	10204	8921	gnl PID e73078	dihydroorotase [Lactobacillus leichmannii]	55	38	1284
148	5	1430	4119	gnl 290572	peripheral membrane protein U [Escherichia coli]	55	29	690
148	6	4171	4650	gnl 695769	transposase [Xanthobacter autotrophicus]	55	37	480
149	14	12564	11650	gnl PID d101329	YojG [Bacillus subtilis]	55	32	915
156	3	1113	550	gnl 231496	[AE000634] conserved hypothetical integral membrane protein (Helicobacter pylori)	55	34	564
159	10	6625	5897	gnl 290533	similar to E. coli ORF adjacent to suc operon; similar to gntR class of regulatory proteins [Escherichia coli]	55	29	729
164	3	1784	2332	gnl PID e25518	hypothetical protein [Bacillus subtilis]	55	37	549
164	5	2772	3521	gnl 40348	put. resolvase Tnp I (AA 1 - 284) [Bacillus thuringiensis]	55	35	750
164	11	7428	7216	gnl PID e249407	unknown [Mycobacterium tuberculosis]	55	38	213
167	5	3860	3345	gnl 535052	involved in protein secretion [Bacillus subtilis]	55	28	516
186	5	2880	2563	gnl 606080	ORF_0290: Geneplot suggests frameshift linking to o267, not found [Escherichia coli]	55	35	318
189	8	4311	5396	gnl PID e183450	hypothetical tcsB protein [Bacillus subtilis]	55	32	1086
192	5	3270	3079	gnl 196504	vitellogenin convertase [Aedes aegypti]	55	38	192
195	2	2454	1384	gnl 1574693	transferase, peptidoglycan synthesis (murG) [Haemophilus influenzae]	55	33	1071
198	4	3013	2471	gnl PID e313074	hypothetical protein [Bacillus subtilis]	55	29	543
214	1	373	744	gnl PID d101741	transposase [Synecocystis sp.]	55	33	372
219	4	1115	456	gnl 288301	ORF2 gene product [Bacillus megaterium]	55	30	660
263	7	3742	3443	gnl 18137	cgr-4 product [Chlamydomonas reinhardtii]	55	48	300
285	1	2	829	gnl PID d100974	unknown [Bacillus subtilis]	55	40	828
286	1	650	249	gnl 398444	ORF 118 kDa [Vibrio cholerae]	55	31	402
297	2	1229	1696	gnl 150848	pilC [Porphyromonas gingivalis]	55	39	468

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
309	2	218	982	gi 574491	hypothetical haemophilus influenzae	55	35	765
328	2	646	224	gi 571500	prohibitin (Saccharomyces cerevisiae)	55	27	423
330	1	1140	474	gi 396397	soxS (Escherichia coli)	55	29	867
364	1	2538	1546	gi 391394	Tb-291 membrane associated protein (Trypanosoma brucei subgroup)	55	36	993
368	3	941	105	gi 160671	S antigen precursor (Plasmodium falciparum)	55	40	837
3	5	4604	3624	gi 2293176	signal transduction protein kinase (Bacillus subtilis)	54	26	981
9	11	7746	7246	gi 1146245	putative (Bacillus subtilis)	54	38	501
38	24	16213	17937	gi 1480429	putative transcriptional regulator (Bacillus stearothermophilus)	54	27	1725
40	8	5076	4882	gi 39989	methionyl-tRNA synthetase (Bacillus stearothermophilus)	54	35	195
43	4	3980	2367	gnl P16148611	ABC transporter (Lactobacillus helveticus)	54	25	1614
52	10	10844	12103	gi 1762962	FemA (Staphylococcus simulans)	54	29	1260
57	1	3	512	gi 558177	endo-1,4-beta-xylanase (Cellulomonas fimi)	54	36	510
58	1	4749	4246	gnl P1614101237	hypothetical (Bacillus subtilis)	54	29	504
71	7	10684	11703	gi 510255	orf3 (Escherichia coli)	54	31	1020
71	20	127546	127737	gi 202543	serotonin receptor (Rattus norvegicus)	54	31	192
72	2	844	1098	gi 148613	arnB gene product (Plasmid F)	54	37	255
72	7	7438	6695	gi 1196496	recombinase (Moraxella bovis)	54	38	744
74	10	14043	13465	gi 1200342	ORF 3 gene product (Bradyrhizobium japonicum)	54	32	579
74	12	16483	15995	gi 2317798	maturase-related protein (Pseudomonas alcaligenes)	54	30	489
86	3	2877	2155	gi 46988	orf9.6 possibly encodes the O unit polymerase (Selenomonas enterica)	54	34	723
89	5	4433	3921	gi 147211	phnO protein (Escherichia coli)	54	41	513
90	1	3	464	gi 2317798	maturase-related protein (Pseudomonas alcaligenes)	54	30	462
96	10	8058	8510	gnl P1614102015	AB001488) SIMILAR TO SALMONELLA TYPHIMURUM SLYY GENE REQUIRED FOR SURVIVAL IN MACROPHAGE (Bacillus subtilis)	54	32	453
97	6	4662	3604	gi 1591394	transketolase (Methanococcus jannaschii)	54	30	1059
106	11	10406	12010	gi 606286	ORF_0637 (Escherichia coli)	54	32	1605
147	8	8663	7404	gnl P1614101615	ORF_ID:031987; similar to (SwissProt Accession Number P17340) (Escherichia coli)	54	35	1260

TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
171	4	2477	3223	gi 1439528	ELIC-man (Lactobacillus curvatus)	54	36	747
174	2	2068	1787	gnl PID d100518	motor protein (Homo sapiens)	54	35	282
188	1	526	1188	gnl PID a250352	unknown (Mycobacterium tuberculosis)	54	31	663
198	5	3582	2884	gnl PID e11074	hypothetical protein (Bacillus subtilis)	54	33	699
207	1	1	1641	gnl PID d101813	hypothetical protein (Synecocystis sp.)	54	24	1641
210	1	2	655	gi 2293206	(AF008220) Ymp (Bacillus subtilis)	54	29	654
225	2	966	2357	gnl PID e130194	RII16.1 (Caenorhabditis elegans)	54	39	1392
241	1	1681	147	gnl PID d101813	hypothetical protein (Synecocystis sp.)	54	26	1335
263	2	907	1395	gnl PIN d101886	transposase (Synecocystis sp.)	54	30	489
263	6	3450	2979	gi 160671	S antigen precursor (Plasmodium falciparum)	54	47	474
277	3	2517	1363	gi 1196926	unknown protein (Streptococcus mutans)	54	30	1155
307	1	828	4	gi 2293198	(AF008220) Ytp (Bacillus subtilis)	54	28	825
325	1	19	768	gi 2182507	(AE000083) Y41H (Rhizobium sp. NGR234)	54	37	750
332	2	898	590	gi 1591815	ADP-ribosylglycohydrolase (drac) (Methanococcus jannaschii)	54	32	309
385	4	240	479	gi 530878	amino acid feature: N-glycosylation sites, aa 41...43, 46...48, 51...53, 72...74, 107...109, 128...130, 132...134, 158...160, 163...165; amino acid feature: Rod protein domain, aa 169...340; amino acid feature: globular protein domain	54	49	240
7	25	19702	119493	gnl PID a255111	hypothetical protein (Bacillus subtilis)	53	32	210
73	1	2497	2013	gnl PID d102015	(AB001488) SIMILAR TO SALMONELLA TYPHIMURUM SLVY GENE REQUIRED FOR SURVIVAL IN MACROPHAGE (Bacillus subtilis)	53	25	465
29	11	9042	10121	gi 143331	alkaline phosphatase regulatory protein (Bacillus subtilis)	53	31	1080
33	1	1479	1009	gi 510655 S106	hypothetical protein X - Pyrococcus woesei (fragment)	53	33	471
36	6	4583	5134	gnl PID e116029	unknown (Mycobacterium tuberculosis)	53	30	552
38	14	8521	8898	gi 580904	homologous to f coli rnpA (Bacillus subtilis)	53	30	378
52	7	7007	8686	gi 1377811	unknown (Bacillus subtilis)	53	29	1680
54	17	17555	19564	gi 1666069	orf2 gene product (Lactobacillus leichmannii)	53	36	2010
56	1	1	681	gi 1592266	restriction modification system S subunit (Methanococcus jannaschii)	53	32	681

TABLE 2  
S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
57	10	9431	8487	[gi1178854]	[AE00310] (351: Residues 1-12) are 100 pct identical to YOLJ_ECOLI SW: P33944 (122 aa) and aa 152-351 are 100 pct identical to YOLJ_ECOLI SW: P33943 [Escherichia coli]	53	31	945
61	1	429	4	[gnl PIU e236667]	B0024.12 [Caenorhabditis elegans]	53	33	426
71	1	5772	4	[gi1393394]	TB-291 membrane associated protein [Trypanosoma brucei subgroup]	53	33	5769
72	3	894	2840	[gi12293178]	[AF008220] YcsD [Bacillus subtilis]	53	27	1947
73	14	9793	9212	[gi11778556]	putative cobalamin synthesis protein [Escherichia coli]	53	32	582
88	7	5217	4342	[gi12098719]	putative fimbrial-associated protein [Actinomyces naeslundii]	53	38	876
93	5	2395	1688	[gi1563366]	gluconate oxidoreductase [Gluconobacter oxydans]	53	33	708
96	9	6632	7762	[gi1517204]	[ORF], putative 42 kDa protein [Streptococcus pyogenes]	53	42	1131
108	8	7629	8600	[gi1149581]	maturation protein [Lactobacillus paracasei]	53	32	972
128	9	6412	6972	[gnl PID e117237]	unknown Mycobacterium tuberculosis	53	36	561
128	12	8429	9253	[gi1311070]	penetratin fusion protein [Xenopus laevis]	53	31	825
148	1	3	950	[pic A61607 A616]	probable hemolysin precursor - Streptococcus agalactiae (strain 78-360)	53	36	948
163	2	2162	3022	[gi11755150]	nocturnin [Xenopus laevis]	53	30	861
171	3	2304	2624	[gi11732200]	PTS permease for mannose subunit 11Phan [Vibrio furnissii]	53	32	321
182	5	3785	3051	[gnl PID d100572]	unknown [Bacillus subtilis]	53	35	735
209	1	2948	1915	[gi1178505]	lactic enterobactin transport protein [Escherichia coli]	53	28	1014
218	5	3884	2406	[gi140162]	murE gene product [Bacillus subtilis]	53	34	1479
250	1	473	790	[gnl PID e34776]	VibH protein [Bacillus subtilis]	53	30	318
275	3	1	1611	[gnl PID d101314]	Yqew [Bacillus subtilis]	53	35	1611
332	1	544	2	[gi1409286]	barU [Bacillus subtilis]	53	31	543
2	2	2543	3445	[gnl PID e233879]	hypothetical protein [Bacillus subtilis]	52	39	903
3	22	22402	23376	[gi138969]	lacF gene product [Agrobacterium radiobacter]	52	36	975
5	1	8094	2156	[gnl PID e324915]	IgA1 protease [Streptococcus sanguis]	52	32	5739
22	26	11961	20212	[gi1152901]	[ORF 3] [Spirochaeta aurantia]	52	35	252
22	31	23340	24666	[gi1289262]	[comE ORF3] [Bacillus subtilis]	52	32	1527
27	6	5397	4801	[gi139573]	p20 (AA 1-178) [Bacillus licheniformis]	52	35	597

TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
35	10	8604	7357	gi 508241	putative O-antigen transporter [Escherichia coli]	52	27	1248
45	4	4801	3662	gnl PID d102243	(AB005541) homologs are found in E. coli and H. influenzae; see SWISS-PROT ACC# P42100 [Bacillus subtilis]	52	36	1140
48	16	14385	13726	gnl PID e205174	orf2 [Lactobacillus helveticus]	52	25	660
49	4	5321	5755	gi 2317740	(AF013987) nitrogen regulatory IIA protein [Vibrio cholerae]	52	19	435
54	4	2773	4668	gi 1500472	M. jannaschii predicted coding region MJ1577 [Methanococcus jannaschii]	52	36	1896
54	6	5250	4969	gi 2182453	(AF000079) Y410 [Rhizobium sp. NGR234]	52	40	282
66	6	8400	6955	gi 43140	TrkG protein [Escherichia coli]	52	30	1446
71	26	10659	11112	gnl PID e31499	unknown [Mycobacterium tuberculosis]	52	23	654
75	2	1673	1035	gnl PID d102271	(AB001683) FarA [Streptomyces sp.]	52	27	639
81	3	1439	2893	gnl PID e31458	rhamulose kinase [Bacillus subtilis]	52	32	1455
81	8	4987	5781	gi 147403	mannose permease subunit II-P-Man [Escherichia coli]	52	37	795
83	21	20687	21853	gi 143165	phosphoribosyl aminimidazole carboxylase II (PUR-K; tsg start codon) [Bacillus subtilis]	52	37	1167
86	6	5785	4592	gi 1276879	EpsF [Streptococcus thermophilus]	52	26	1194
86	120	119190	117861	gi 454844	ORF 3 [Schistosoma mansoni]	52	26	1530
96	113	10540	9659	gi 288299	ORF1 gene product [Bacillus megaterium]	52	33	882
111	1	2	2026	gi 148309	Cytolysin B transport protein [Enterococcus faecalis]	52	27	2025
112	2	1457	2167	gi 471234	orf1 [Haemophilus influenzae]	52	33	711
118	3	2931	2365	bbs 151233	Hip-24 kDa macrophage infectivity potentiator protein [Legionella pneumophila, Philadelphia-1, Peptide, 184 aa] [Legionella pneumophila]	52	33	567
122	9	5646	5951	gi 8214	myosin heavy chain [Drosophila melanogaster]	52	36	306
122	11	6159	6374	gi 434025	[dihydro]lipamide acetyltransferase [Pseudomonas carbinolicus]	52	52	216
134	6	4880	6313	gi 151733	M protein trans-acting positive regulator [Streptococcus pyogenes]	52	43	1434
135	3	1238	2716	gnl PID e245024	unknown [Mycobacterium tuberculosis]	52	35	1479
141	3	1681	2319	gnl PID d100573	unknown [Bacillus subtilis]	52	32	639
161	4	2562	5624	gi 1146243	22 kDa identity with Escherichia coli DNA-damage inducible protein putative [Bacillus subtilis]	52	36	2463
173	2	968	183	gi 121569	putative orf: GT9_orf434 [Mycoplasma pneumoniae]	52	30	786

TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
198	6	4400	3567	[gnl pid e313010]	hypothetical protein [Bacillus subtilis]	52	26	834
210	12	8844	9107	[gi 497647]	DNA gyrase subunit B [Mycoplasma genitalium]	52	38	264
214	10	5264	5431	[gi 550697]	envelope protein [human immunodeficiency virus type 1]	52	36	168
225	1	15	884	[gi 1552773]	hypothetical [Escherichia coli]	52	34	870
230	1	39	362	[gnl pid d100502]	unknown [Bacillus subtilis]	52	28	324
287	1	871	2	[gnl pid e335028]	protease/peptidase [Mycobacterium leprae]	52	29	870
363	2	1305	4	[gi 393394]	17B-291 membrane associated protein (Typhosoma brucei subgroup)	52	32	1302
23	2	2048	1173	[gnl pid e254943]	unknown [Mycobacterium tuberculosis]	51	30	876
29	3	742	1521	[gi 929900]	5'-methylthioadenosine phosphorylase [Sulfolobus solfataricus]	51	31	780
45	1	410	1597	[gi 1877429]	integrase [Streptococcus pyogenes phage T12]	51	32	1188
48	26	19227	18946	[gi 2314455]	(A6000633) transcriptional regulator (tena) [Helicobacter pylori]	51	33	282
73	5	4276	4016	[gi 474177]	alpha-D-1,4-glucosidase [Staphylococcus xylosum]	51	31	261
81	11	8935	12057	[gi 311070]	pentraxin fusion protein [Xenopus laevis]	51	31	3123
83	5	1195	1986	[gnl pid d101316]	[vqf] [Bacillus subtilis]	51	33	792
98	10	7531	8538	[gi 41500]	[ORF 3] (AA 1-352); 38 kD (put. fixX) [Escherichia coli]	51	28	1008
113	6	3908	5173	[gi 466882]	[ppsl; B1496_C2_189] [Mycobacterium leprae]	51	27	1266
124	1	326	57	[gi 2191168]	[AF007270] contains similarity to myosin heavy chain [Arabidopsis thaliana]	51	32	270
129	10	7286	6816	[gi 1046241]	[orf14] [Bacteriophage HP1]	51	30	471
143	3	4963	3983	[gi 1354935]	[probable copper-transporting atpase [Escherichia coli]	51	26	981
148	15	11359	10226	[gi 2293256]	[AF008220] putative hippurate hydrolase [Bacillus subtilis]	51	36	1134
149	8	6003	7313	[gi 1633572]	[herpesvirus saimiri ORF7] homolog [Kaposi's sarcoma-associated herpes-like virus]	51	21	1311
151	9	112092	11550	[gnl pid e281580]	hypothetical 40.7 kD protein [Bacillus subtilis]	51	34	543
159	6	2555	3208	[gi 146944]	[CMP-H-acetylneuraminic acid synthetase [Escherichia coli]	51	36	654
174	1	1797	4	[gi 1773166]	[probable copper-transporting atpase [Escherichia coli]	51	28	1794
265	4	2231	1773	[gnl pid e256400]	[anti-P falciparum antigenic polypeptide [Saimiri sciureus]	51	18	459
277	2	643	1311	[pur 532915 5329]	[pILD protein - Neisseria gonorrhoeae]	51	33	669

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	Match accession	Match gene name	% sim	% ident	Length (nt)
350	1	890	3	gi 290509	o307 [Escherichia coli]	51	30	888
363	4	1228	4485	gi 1707247	partial CDS (Caenothabditis elegans)	51	23	3258
367	1	1701	4	gi 393394	TD-29) membrane associated protein (Trypanosoma brucei subgroup)	51	32	1698
15	5	5174	4497	gnl pid e58151	F3 [Bacillus subtilis]	50	38	678
16	4	2220	2582	gnl pid e125010	hypothetical protein [Bacillus subtilis]	50	29	363
19	5	2591	4159	gi 1552733	similar to voltage-gated chloride channel protein [Escherichia coli]	50	30	1569
25	4	2701	1997	gi 887849	ORF_1219 [Escherichia coli]	50	27	705
35	1	211	417	gnl pid e236697	unknown [Saccharomyces cerevisiae]	50	33	207
39	4	3416	5152	gnl pid d100974	unknown [Bacillus subtilis]	50	27	1737
51	7	4000	5181	gi 1592027	carbamoyl-phosphate synthase, pyrimidine-specific, large subunit [Methanococcus jannaschii]	50	27	1182
51	9	7179	8303	gi 1591847	type I restriction-modification enzyme, S subunit [Methanococcus jannaschii]	50	28	1125
52	8	8740	9534	gi 144297	acetyl esterase (XynC) [Calducellum saccharolyticum]	50	34	795
52	16	16591	15770	gi 12108229	basic surface protein [Lactobacillus fermentum]	50	34	822
57	7	6031	6316	gi 2275264	60S ribosomal protein L7B [Schizosaccharomyces pombe]	50	40	306
71	21	29348	28383	gnl pid d101328	YqjA [Bacillus subtilis]	50	30	966
86	12	11155	10769	gnl pid e124964	hypothetical protein [Bacillus subtilis]	50	24	387
93	2	1205	330	gi 1066016	similar to Escherichia coli pyruvate, water dikinase, Swiss-Prot Accession Number P23518 [Pyrococcus furiosus]	50	24	876
96	5	1673	2959	gnl pid e122433	gamma-glutamylcysteine synthetase [Brassica juncea]	50	29	1287
98	2	218	1171	gi 151110	leucine-, isoleucine-, and valine-binding protein [Pseudomonas aeruginosa]	50	30	954
103	4	3303	2785	gi 154330	O-antigen ligase [Salmonella typhimurium]	50	31	519
115	5	6480	5980	gi 895747	putative cel operon regulator [Bacillus subtilis]	50	26	501
129	11	7559	7305	gi 1216475	skeletal muscle ryanodine receptor [Homo sapiens]	50	32	255
129	13	8192	7965	gi 152271	319-kDa protein [Rhizobium meliloti]	50	30	228
151	5	7634	6819	gi 40348	put. resolvase Tnp I (AA 1 - 284) [Bacillus thuringiensis]	50	35	816
153	1	1	597	gnl pid d102015	(AB001488) SIMILAR TO NITROREDUCTASE [Bacillus subtilis]	50	29	597



TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
155	5	5986	5432	gi1276880	EpsG (Streptococcus thermophilus)	50	28	555
160	9	7390	6323	gi1786983	(AE000179) o331: 92 pct identical to the 333 aa hypothetical protein YBHE_EC01.1 SW: P52697; 26 pct identical (7 gaps) to 167 residues of the 373 aa protein MLE-TRICU SW: P46057; SW: P52697 (Escherichia coli)	50	30	1068
163	6	7396	8091	gn1P10 d101313	Yqen (Bacillus subtilis)	50	22	696
167	6	5232	3940	gi1413926	Ipa-2r gene product (Bacillus subtilis)	50	27	1293
169	2	807	130	gn1P10 e304540	endolysin (Bacteriophage Bastille)	50	35	678
171	5	3168	4025	gi1606080	ORF_0290; Geneplot suggests frameshift linking to o267, not found (Escherichia coli)	50	27	858
210	11	8151	8414	gi1330038	HRV 2 polyprotein (Human rhinovirus)	50	25	264
164	1	1538	135	gi1393396	Tb-282 membrane associated protein (Trypanosoma brucei subgroup)	50	31	1404
10	7	5911	5090	gi1344859	ORF B (Clostridium perfringens)	49	24	822
26	5	10754	9788	gi1142440	ATP-dependent nuclease (Bacillus subtilis)	49	31	987
66	7	9777	8398	gi1414170	trkA gene product (Methanobacillus marisnigellii)	49	26	1380
77	6	5164	4648	gn1P10 e285122	RexX protein (Mycobacterium smegmatis)	49	28	717
82	13	13289	13249	gn1P10 e255091	hypothetical protein (Bacillus subtilis)	49	20	561
91	9	4866	4531	gi140067	X gene product (Bacillus sphaericus)	49	26	336
112	5	4019	4948	gi11574380	lhc-1 operon protein (lhc8) (Haemophilus influenzae)	49	27	930
129	7	6058	4949	gn1P10 e267587	Unknown (Bacillus subtilis)	49	35	1110
135	5	3875	4438	gi139573	P20 (AA 1-178) (Bacillus licheniformis)	49	25	564
154	2	1423	1953	gn1P10 d101102	regulatory components of sensory transduction system (Synecocystis sp.)	49	29	531
156	5	2878	1637	gn1P10 d101732	hypothetical protein (Synecocystis sp.)	49	25	1242
173	5	3500	2940	gi1490324	ORF X gene product (unidentified)	49	30	561
182	1	1057	2	gi1331002	first methionine codon in the ECLF1 ORF (Saimiriine herpesvirus 2)	49	25	1056
192	6	5352	3667	gi12394472	(AF024499) contains similarity to homeobox domains (Caenorhabditis elegans)	49	23	1686
253	4	1129	1350	gi1511116	SR4 protein (Saccharomyces cerevisiae)	49	23	222
277	1	600	136	gi1396844	ORF (18 kDa) (Vibrio cholerae)	49	32	465
327	3	1435	887	gi1733524	phosphatidylinositol-4,5-diphosphate 3-kinase (Dictyostellium discoideum)	49	24	549

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
365	1	1436	132	gi 39394	TB-291 membrane associated protein (Trypanosoma brucei subgroup)	49	31	1305
33	7	4461	3277	gi 145644	codes for a protein of unknown function (Escherichia coli)	48	26	1185
40	2	652	1776	gnl PID e290649	ornithine decarboxylase (Nicotiana tabacum)	48	29	1125
67	4	1377	2184	gi 1772652	2-keto-3-deoxygluconate kinase (Haloterrax alkalitell)	48	30	1008
74	2	4269	3871	gi 2182678	(AE000101) Y4WJ (Rhizobium sp. NGR231)	48	27	399
81	2	1326	541	gi 153672	lactose repressor (Streptococcus mutans)	48	33	786
81	3	2981	3646	gi 146042	fuculose-1-phosphate aldolase (fucA) (Escherichia coli)	48	30	666
97	1	602	51	gi 153794	egg (Streptococcus gordonii)	48	29	552
110	1	1	3132	gi 1381114	prtb gene product (Lactobacillus delbrueckii)	48	23	3132
131	5	2914	2147	gnl PIN e183811	Acyl-ACP thioesterase (Brassica napus)	48	27	768
133	3	3494	2628	gnl PID e261988	putative ORF (Bacillus subtilis)	48	27	867
139	6	4231	4599	gi 1049388	2k470.1 gene product (Caenorhabditis elegans)	48	23	369
139	8	5036	5665	gi 1022725	unknown (Staphylococcus haemolyticus)	48	29	630
140	12	11936	11007	gnl PID d102049	H. Influenzae, ribosomal protein alanine acetyltransferase; P44305 (189) (Bacillus subtilis)	48	27	930
146	9	5670	4654	gi 1591731	malvalonate kinase (Methanococcus jannaschii)	48	24	1017
161	3	1280	2374	gnl PID d101578	Collagenase precursor (EC 3.4.-.-) (Escherichia coli)	48	24	1095
172	11	110581	11048	gnl PID d101132	hypothetical protein (Synecocystis sp.)	48	27	468
182	4	2930	2586	gi 40067	X gene product (Bacillus sphaericus)	48	37	345
210	15	110786	11196	sp P13940 LE29	LATE EMBRYOGENESIS ABUNDANT PROTEIN D 29 (LEA D-29)	48	30	411
214	12	6231	6482	gi 40389	non-toxic components (Clostridium botulinum)	48	26	252
221	1	704	3	gi 1573364	H. Influenzae predicted coding region H1032 (Haemophilus influenzae)	48	27	702
227	2	647	3928	gi 1673693	(AE000005) Mycoplasma pneumoniae, C09.orf18 Protein (Mycoplasma pneumoniae)	48	30	1282
251	2	480	758	gnl PID e236697	unknown (Saccharomyces cerevisiae)	48	31	279
363	3	1874	1122	gi 18137	cgrc 4 product (Chlamydomonas reinhardtii)	48	40	753
389	1	505	2	gi 18137	cgrc-4 product (Chlamydomonas reinhardtii)	48	38	504
3	21	20879	22258	gnl PID e264778	putative maltose-binding protein (Streptomyces coelicolor)	47	33	1380

TABLE 2  
S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
6	4	4089	4658	gi 39573	p20 (AA 1-178) [Bacillus licheniformis]	47	23	570
15	1	3736	1760	gnl PID d100572	unknown [Bacillus subtilis]	47	25	1977
35	15	14516	13263	gi 1773351	Cap5L [Staphylococcus aureus]	47	20	1254
51	6	3547	4002	pir A37024 A370	32K antigen precursor - Mycobacterium tuberculosis	47	38	456
55	8	10154	9273	gi 39848	103 [Bacillus subtilis]	47	26	882
92	4	1753	3276	gnl PID e280611	PCPC [Streptococcus pneumoniae]	47	35	1524
127	9	5589	5386	gi 1786458	IAE000134 (120): This 120 aaorf is 76 pct identical (10 gaps) to 42 residues of an approx. 48 aa protein Y127_HAEIN SW: P43949 [Escherichia coli]	47	32	204
110	2	1232	1759	gnl PID e266555	unknown [Mycobacterium tuberculosis]	47	23	528
140	4	4951	3542	gnl PID d100964	homologue of hypothetical protein in a rapamycin synthesis gene cluster of Streptomyces hygroscopicus [Bacillus subtilis]	47	24	1410
151	3	6814	6200	gi 1522674	M. jaumasi predicted coding region MJECU4 [Methanococcus jaumasi]	47	27	615
157	3	803	1174	gnl PID d101320	YggZ [Bacillus subtilis]	47	25	372
178	5	1267	2155	gi 2367190	IAE000390 0334: sequence change joins ORFs YGJR & YGJS from earlier version (YGJR_ECOLI SW: P42599 and YGJS_ECOLI SW: P42600) [Escherichia coli]	47	30	1113
273	1	2	1549	gnl PID e254973	autolysin sensor kinase [Bacillus subtilis]	47	32	1548
100	2	880	644	gi 1835755	zinc finger protein Png-1 [Mus musculus]	47	22	237
54	14	14182	12638	pir S43609 S436	rofa protein - Streptococcus pyogenes	46	24	1545
88	1	2	1018	gnl PID e223891	xylose repressor [Anaerococcus thermophilum]	46	27	1017
96	7	4553	5860	gnl PID d101652	ORF_ID:034745; similar to [SwissProt Accession Number P45272] [Escherichia coli]	46	23	1308
112	1	1127	3	gi 2209215	IAF004325) putative oligosaccharide repeat unit transporter [Streptococcus pneumoniae]	46	24	1125
122	13	7308	7982	gi 1054776	hrr44 gene product [Homo sapiens]	46	34	675
127	14	9198	8125	gi 1469286	latA gene product [Actinobacillus pleuropneumoniae]	46	28	1074
137	4	7093	6197	gi 153794	199 [Streptococcus gordonii]	46	26	897
140	8	8220	7723	gi 1235795	pullulanase [Thermoanaerobacterium thermosulfurigenes]	46	21	498
140	9	9205	8315	gi 407878	leucine rich protein [Streptococcus equisimilis]	46	27	891

TABLE 2

S. pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
162	1	1	1125	gi11143209	[ORF7: Method: conceptual translation supplied by author (Shigella sonnei)]	46	25	1125
199	1	1	585	gi11947171	[AF000299] No definition line found (Caenorhabditis elegans)	46	28	585
223	1	1971	1477	[sp P02562 MYSS- MYOSIN HEAVY CHAIN, SKELETAL MUSCLE (FRAGMENTS)]		46	27	495
232	2	760	1608	gi11016112	[ycf18 gene product (Cyanophora paradoxa)]	46	28	849
292	1	687	220	gi11673744	[AE000011] Mycoplasma pneumoniae, xylidine deaminase; similar to GenBank Accession Number C53112, from M. litum (Mycoplasma pneumoniae)]	46	29	468
30	8	5843	6472	gi11788049	[AE000270] o235; This 235 aa ORF is 29 pct identical (10 gaps) to 198 residues of an approx. 216 aa protein YTXB_BACSU SW: P06368 (Escherichia coli)]	45	24	630
48	6	1461	3868	gi1722339	unknown (Acetobacter xylinum)	45	29	408
60	1	107	2	gi11699079	[coded for by C. elegans cDNA yk41h4.3; coded for by C. elegans cDNA yk148g10.5; coded for by C. elegans cDNA yk152g5.5; coded for by C. elegans cDNA yk59a10.5; coded for by C. elegans cDNA yk41h4.5; coded for by C. elegans cDNA cm20g10; coded]	45	36	306
72	16	14371	14874	gi11321900	[NADH dehydrogenase (ubiquinone) (Artemia franciscana)]	45	25	504
99	7	9158	7941	gi1152192	[mutation causes a succinoglucon-minus phenotype; ExoB is a transmembrane protein; third gene of the exoBQ operon; putative (Rhizobium meliloti)]	45	28	1218
127	12	7046	6606	bhs1153689	[Hit-B iron utilization protein (Haemophilus influenzae, type B, DL42, HTHI TN106, Peptide, 506 aa) (Haemophilus influenzae)]	45	24	441
137	5	1561	2619	gi1472921	[v-type Na-ATPase (Enterococcus hirae)]	45	33	1059
209	1	774	364	gi1304141	[restriction endonuclease beta subunit (Bacillus coagulans)]	45	28	411
314	1	604	2	gi1480457	[latex allergen (Hevea brasiliensis)]	45	31	603
20	18	19782	20288	gi1433942	[ORF (Lactococcus lactis)]	44	26	507
87	8	7030	6452	gi1537207	[ORF_f277 (Escherichia coli)]	44	26	579
166	5	4909	4037	gn11810308082	[membrane transport protein (Bacillus subtilis)]	44	25	873
247	1	818	75	gn11810308082	[ORF1 (Bacillus sp.)]	44	20	744
32	3	1885	3876	gi12351768	[PspA (Streptococcus pneumoniae)]	43	24	1992
36	17	15467	18256	gi11045719	[M. genitalium predicted coding region MG064 (Mycoplasma genitalium)]	43	26	2790
54	15	14656	17343	gi1520541	[penicillin-binding proteins 1A and 1B (Bacillus subtilis)]	43	27	2688
67	2	696	1352	gi1536934	[yja gene product (Escherichia coli)]	43	29	657
139	2	2416	338	gi1396400	[similar to eukaryotic Na <sup>+</sup> /H <sup>+</sup> exchangers (Escherichia coli)]	43	24	2079

TABLE 2

S pneumoniae - Putative coding regions of novel proteins similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)	match accession	match gene name	% sim	% ident	length (nt)
298	1	3	809	[gi413972]	ipa-48r gene product [Bacillus subtilis]	43	24	807
387	1	47	427	[gi2313652]	[AF016669] No definition line found [Caenorhabditis elegans]	43	30	381
185	4	4221	3127	[gi2182399]	[AE000073] Y46P [Rhizobium sp. NCR234]	41	25	1095
340	1	582	70	[gnl pfid e21868]	CDP-diacylglycerol synthetase [Arabidopsis thaliana]	41	20	513
363	6	4205	1914	[gi1256742]	R27-2 protein [Trypanosoma cruzi]	41	27	2292
368	2	2	943	[gi12178]	LMW glutenin (AA 1-356) [Triticum aestivum]	41	34	942
155	3	4489	2361	[gi142033]	member of ATP-dependent transport family, very similar to mdr proteins and hemolysin B, export protein [Escherichia coli]	40	18	1629
365	2	95	1438	[gi11633572]	Herpesvirus saimiri ORF7 homolog [Kaposi's sarcoma-associated herpes-like virus]	40	21	1344
1	3	2979	3860	[gnl pfid d101908]	hypothetical protein [Synecocystis sp.]	39	26	882
1	5	3814	4647	[gnl pfid d101961]	hypothetical protein [Synecocystis sp.]	39	19	834
26	6	14035	10724	[gi1142439]	ATP-dependent nuclease [Bacillus subtilis]	38	20	3312
47	1	3	4916	[gi1612549]	INF-180 [Petromyzon marinus]	36	23	4914

TABLE 3

S. pneumoniae - Putative coding regions of novel proteins not similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)
1	4	1428	3009
1	6	4611	4964
3	2	818	994
3	3	1182	1574
3	7	5182	6497
3	25	25046	25396
3	26	25625	26317
6	2	1519	1689
6	14	12875	12618
6	15	13215	12841
6	18	15977	15390
7	12	9955	9419
7	13	10161	9910
8	6	3915	4280
9	9	6024	5704
10	8	6909	6298
10	9	7116	6888
10	11	7968	7672
12	1	1140	4
12	3	1779	1456
14	2	1913	1434
16	1	1	243
16	5	5675	3087
17	1	324	34
17	3	1451	1050
17	9	4890	4465
20	14	14544	115893

TABLE 3

S. pneumoniae - Putative coding regions of novel proteins not similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)
21	3	3359	2589
21	5	4802	4482
22	21	17099	17362
22	25	19467	19982
22	33	25540	25764
22	35	26388	26218
22	36	26382	27572
23	7	6655	6032
23	8	7132	6653
24	1	36	518
25	5	3009	2641
27	4	4819	4223
27	5	4789	4956
28	5	3017	1797
28	8	4272	3850
28	10	5028	4597
28	11	5746	5072
29	7	5596	4919
29	8	5039	5518
29	9	5595	8207
30	9	6511	6263
31	6	2664	2344
32	5	5203	5538
33	8	5327	4668
34	10	8024	7740
34	12	9360	8641
34	13	9667	9377

**TABLE 3**  
*S. pneumoniae* - Putative coding regions of novel proteins not similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)
34	18	11104	11902
35	11	9688	8588
35	12	11071	9670
36	2	334	1041
36	12	11120	10893
36	13	10993	11388
36	15	12172	14595
38	7	4269	4577
38	8	4480	5001
38	10	5517	5711
38	17	10732	11376
40	3	1728	3143
43	1	172	5
43	7	8884	8732
43	8	9568	9071
44	4	4831	6831
45	3	3204	3665
46	4	3875	3468
46	7	6074	7081
48	5	3196	3582
48	8	4579	4229
48	11	9323	8922
48	16	13042	12494
48	20	16342	15764
48	24	17971	18351
48	30	21979	21776
49	1	209	3



TABLE 3

S. pneumoniae - Putative coding regions of novel proteins not similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)
50	4	3307	2672
51	5	3239	3598
52	11	12146	12883
54	7	5588	5187
54	8	6013	5459
54	9	6004	6210
54	16	17685	17506
55	9	110515	110123
55	12	11947	12141
56	3	935	1387
56	4	1496	1939
57	3	1624	2130
57	4	2100	2501
58	6	7541	7335
59	1	2	430
59	4	2416	2736
59	5	2734	3063
59	8	4743	5549
59	9	5459	5929
60	6	5741	6451
61	3	2395	1772
61	5	3316	3176
64	1	2722	2
66	2	1180	3147
66	8	9082	9495
67	3	1343	1182
69	2	1165	980

TABLE 3

S. pneumoniae - Putative coding regions of novel proteins not similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)
70	5	4059	3922
70	6	4215	4057
70	9	5268	5504
71	15	20351	21901
71	16	21859	22338
71	19	26204	27556
72	9	8458	8081
73	4	1815	4216
73	6	4214	4582
73	7	4369	4773
73	10	7183	6428
73	15	9462	9668
76	1	524	195
76	2	867	535
76	11	8602	9210
80	6	7924	8109
81	1	244	2
81	10	6631	8931
83	4	1872	1150
83	17	16810	16460
84	3	4464	2929
86	2	2147	1092
86	4	3606	2875
86	19	16767	17114
87	5	5326	5000
87	7	6459	6001
87	9	7224	7006

TABLE 3

S. pneumoniae - Putative coding regions of novel proteins not similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)
87	18	17930	17670
87	19	18275	17928
88	2	1619	1840
88	4	2711	2878
88	9	6252	6016
89	3	2634	1621
89	9	7371	6868
90	2	899	2395
90	3	1143	952
91	3	2959	3141
91	4	3170	3691
91	6	4253	4573
93	1	391	2
93	6	2648	2379
93	8	4533	3712
96	1	3	182
96	2	904	632
96	3	1407	1147
96	4	1250	1420
97	9	7043	6753
99	15	18522	18692
99	17	19717	19541
100	2	4094	1980
103	1	48	299
103	6	4924	4373
104	5	6142	6735
105	7	6098	6517

**TABLE 3** *S. pneumoniae* - Putative coding regions of novel proteins not similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)
106	1	1	363
106	10	9832	10212
108	1	2	268
111	3	3417	3788
111	4	3809	4606
115	10	10854	10438
116	3	2873	2121
118	2	2274	1357
122	4	2698	2333
122	10	5858	6199
122	12	6301	7416
124	2	346	690
128	4	2544	3368
129	1	689	102
129	2	1011	724
129	8	6454	6056
129	9	6540	6277
129	12	7809	7621
131	3	1433	756
131	10	5972	5673
134	11	11838	11209
135	2	625	1140
136	4	2913	3830
137	2	325	134
139	12	14027	14521
139	13	14840	14532
139	14	15363	14875

TABLE 3

S. pneumoniae - Putative coding regions of novel proteins not similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)
140	20	19822	20838
142	1	1	285
146	3	760	479
146	4	1149	778
146	7	3604	2885
146	13	8223	9401
146	14	9399	10676
146	15	10052	9750
147	7	7488	7276
147	9	8913	8647
148	7	5298	4765
149	1	2	1936
149	3	2557	2880
149	9	6258	6070
150	2	1355	579
150	3	2556	1909
153	3	2061	2842
154	3	1953	1741
155	2	2181	1411
156	8	4550	4311
157	1	37	294
159	2	631	780
159	4	1384	1722
159	7	3271	4017
161	2	1332	1018
165	3	5535	4945
166	6	5406	4972

TABLE 3

S. pneumoniae - Putative coding regions of novel proteins not similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)
167	9	6075	6395
169	5	2828	3205
170	7	6485	6243
170	8	6964	6362
170	9	7303	6962
170	11	8790	7906
171	9	7150	7476
172	5	2298	1948
173	4	2913	2677
175	2	659	835
175	3	893	1789
176	2	1487	546
176	3	2200	1466
177	9	4686	4925
177	10	4923	5177
177	11	5111	5347
177	13	7396	8703
178	6	3452	3724
181	5	1853	2473
182	2	2112	1102
182	3	2617	2006
183	2	2126	2320
185	5	4683	4219
185	6	4846	4634
187	4	2940	3557
188	4	3686	4363
188	5	4183	4821

TABLE 3

S. pneumoniae - Putative coding regions of novel proteins not similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)
188	6	5882	6493
189	5	3143	2844
189	9	5956	5564
191	1	618	4
191	11	10357	10001
192	3	2861	2268
192	4	3081	2878
192	7	6800	5331
193	3	997	839
194	4	2315	2127
195	5	6249	4563
195	6	6620	6231
196	2	1553	1849
197	1	1	861
198	9	6844	6644
200	5	5329	5769
200	6	5993	6595
204	5	1914	3276
205	2	447	1709
209	4	2038	2460
209	5	2458	2682
210	10	7370	8230
210	13	9029	10441
210	14	10439	10705
214	5	2581	2330
214	9	5065	5277
214	11	5996	5754

TABLE 3

S. pneumoniae - Putative coding regions of novel proteins not similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)
217	2	541	194
218	2	914	1432
218	3	1430	1972
218	6	3639	3821
219	1	458	39
220	1	869	600
223	4	2617	1964
227	1	1	510
234	4	1539	1312
234	6	2116	1838
235	1	52	312
235	2	310	687
238	1	660	64
246	1	1	270
248	1	3	362
248	2	443	1222
254	3	2789	792
258	2	1179	1616
260	3	1770	2123
263	1	653	177
263	4	2244	1900
263	5	3569	2973
266	1	1	342
266	2	177	1022
270	2	1124	1681
272	1	857	186
275	2	1684	2295



**TABLE 3** *S. pneumoniae* - Putative coding regions of novel proteins not similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)
278	1	2	406
282	1	714	191
282	4	1463	1134
287	2	1119	826
288	1	540	4
289	1	684	4
291	5	1589	1858
293	2	2539	2925
294	1	21	608
296	2	494	700
296	3	670	843
302	1	261	530
309	3	559	350
310	2	249	1889
316	2	2087	1818
317	2	1048	584
318	2	313	777
319	3	477	133
327	2	912	607
331	1	1	549
333	1	2	535
333	2	465	82
333	3	127	342
341	1	1	705
345	2	895	701
346	2	750	199
349	1	1	198

TABLE 3

S. pneumoniae - Putative coding regions of novel proteins not similar to known proteins

Contig ID	ORF ID	Start (nt)	Stop (nt)
350	2	81	413
355	1	44	973
358	2	636	448
360	2	948	628
364	2	1639	1265
378	1	345	1004
379	2	683	510
381	1	109	693
385	1	150	4
385	2	269	30

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## (1) GENERAL INFORMATION:

(i) APPLICANT: Charles Kunsch  
Gil H. Choi  
Patrick S. Dillon  
Craig A. Rosen  
Steven C. Barash  
Michael R. Fannon  
Brian A. Dougherty

(ii) TITLE OF INVENTION: Streptococcus pneumoniae Polynucleotides and Sequences

(iii) NUMBER OF SEQUENCES: 391

## (iv) CORRESPONDENCE ADDRESS:

(A) ADDRESSEE: Human Genome Sciences, Inc.  
(B) STREET: 9410 Key West Avenue  
(C) CITY: Rockville  
(D) STATE: Maryland  
(E) COUNTRY: USA  
(F) ZIP: 20850

## (v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Diskette, 3.50 inch, 1.4Mb storage  
(B) COMPUTER: HP Vectra 486/33  
(C) OPERATING SYSTEM: MSDOS version 6.2  
(D) SOFTWARE: ASCII Text

## (vi) CURRENT APPLICATION DATA:

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(A) APPLICATION NUMBER:

(B) FILING DATE:

(C) CLASSIFICATION:

(vii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER:

(B) FILING DATE:

(viii) ATTORNEY/AGENT INFORMATION:

(A) NAME: Brookes, A. Anders

(B) REGISTRATION NUMBER: 36,373

(C) REFERENCE/DOCKET NUMBER: PB340P1

(vi) TELECOMMUNICATION INFORMATION:

(A) TELEPHONE: (301) 309-8504

(B) TELEFAX: (301) 309-8512

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## (2) INFORMATION FOR SEQ ID NO: 1:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 5625 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

CCAAGCAAAA CCAGCTACAG CTAAAGGAAC TTACGTAACA AACTTGACTA TCACAACTAC	60
TCAAGGTGTT GGTATCAAAG TTGACGTAAA CTCACCTTAA TCAGTAGTTA AAGTAATGTA	120
AAAAAGTTGA AGACGCTATG TCTCACTTT TTTTGATGTA CGACGGCCAT GTTGATATAGT	180
AGATGTGTAC TATTCTAGTT TCAATCTACT ATAGTAGCTC AGAAGTCGGT ACTTAAACGT	240
GCTATATCAA AACCAGTCCT TGAAAAACGT GGACTGGTTT CGTGTTTGGA TTATTACCTT	300
GAACGACATG CGTTAAAAGT TAGTTGAACC GCCGTATGCC GAACGGACGT ACGGTGGTGT	360
GAGAGGGGCT AGAGATTATC CCCTACTCGA TTTGGAATC TAGTGGAAAT AATCTGGAAT	420
AGTCCATCGA GCTTTCTAAT ACTCTTCGAA AATCTCTTCA AACCACGTCA ACGTCGCCCT	480
GCCGTGCGTA TGGTTACTGA CTTTCGTCAGT TCTATCCACA ACCTCAAAAC AGTGTTTTGA	540
GCTGACTACG TCAGTTCCAT CTACAACCTC AAAACAGTGT TTTGAGCAAC CTGCGGCTAG	600
TTTCCTAGTT TGCTCTTTGG TTTTCATTGA GTATAACACA TTGTTAGAAG TTGTTTAAA	660
TTTCCTAATC AGTTTGTTCA CATTACCTT CGATATATTA TATCCCATAG TTAAGGTTGG	720
TCATACAGAT GATTATAGTC ATGGAGCCGT AAAACTTAGT GTTCTTTTAG TTGACAAAGA	780
TGCCATGAAA AAAATATTG TAACTGTAAT AGGATATTTT GAAATAAATA TAGATGAAAA	840
TATCACCGAT ATTCTATACG TAAATGGTAC TGCTATTCTT TATCTTTATT TACGTTCAAT	900
TGTTTCAATA GTTTCGGCAA TTGATAGCAG TGAAGCAATG TTGCTACCTA TCATTAATGT	960
TTTAGAGTTA CTAGATAAAT CTCAACCTTT TGAAGAAGAA TAATTTATTA GCTCACTAAA	1020
TTGAGGGTAA GAAAAAGTAA AAGCAGTAAG AAAAATGTCT TGCATTATAC AGCAACCTTT	1080
TGGGAATGAG TGGATGGATT GAATAAAATT TGATTAAGAG TGGATGATTT ATCTGTAGAT	1140
TATTATTGGA CAGTTAGTCT TGAAGTAGTC TAAGAATTAG GTTATAATCA GTAGAAGCCT	1200
TGCTAATAAT GAGGAGGTTA GTTTATGTAT AGTAGACTGA ATCTAAAATA GTACGAAACA	1260
ATTGCTAAAA CATTATAGA AATTAATTTT ACTTCCCAA TCGATTGTGTT CTCATCTTAT	1320
TTCAATCCGC TATATATTAT GGTATCGAAT CTTATCAGA ATGATAAAAT TAATCAATTG	1380
ATATCTGATT ACAAACAGAA TATGAAAGCT TTTTATATCA CTATTGAAAA ATTTATACGA	1440

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GATGATGAAA GCCTTAAGTG TTATTTTATA AAGGTTATTT CAAGTCGTTT CAAGGTAACA	1500
AGTCTAGATC AGATTGAAGC TGATAAAACG ATACAAAGAA AATATTCAAG TGAGCTAAAA	1560
AAATTTATTG GATTTTATAA TGAGATTATT TGTGAGGAAA ATAGTTTCCT ACATGTACGA	1620
AAGAGGTGGT CGAGTTGGTT TAGGTAGTCG ATGCGTGAGT TGATAATTCT CAGGGTATGG	1680
ACTTCTTTT CATGAATGAG GTAAAAGAGC AGGTATTGTT TAGAGACAAT CATTCTGAGC	1740
ATATTTTCTG GATAGAGGGA GTATCCGATT TTATGATGAA AGTTAATACC GCCCTCTGGT	1800
GAGAAGATGA GTAGGTTGGT AATTTAACT ATTAACAGA ATTTTGTATT AAAAGTATTA	1860
TTTCATGAGA GAAATCCTAA TTTCACAATC CATAGGCAAA CGCTTGCAAT TCGTTTTTTA	1920
TTGGACTATA ATAGGTTGGT ATAAAGCCTT CTGTAGTAAT AAAATGTAGA AGGTGTAGAA	1980
AGTAAGGATT TAGAATATTT GTAGTTAAAA ACACAATGTT GCTATTCCTT ACGATAGGGA	2040
GATAGATATG GCAATGATAG AAGTGAACA TCTTCAGAAA AATTTTGTGA AGACTGTTAA	2100
GGAACCGGGC TTGAAGGGGG CTTTGGGCTC CTTTATTCAT CCTGAAAAGC AGACCTTTGA	2160
AGCGGTCAAG GATTTGACCT TTGAGGTTC AAAAGGGCAG ATTTTAGGAT TTATCGGGGC	2220
AAATGGTGCT GGGAACTCGA CAACCATTA AATGCTGACA GGAATTTTGA AACCAACATC	2280
TGGTTTTTGT CGGATTAACG GCAAGATTCC CCAGGACAAT CGGCAAGATT ATGTCAAAGA	2340
TATTGGCGTA GTCTTTGGAC AACGCACCCA GCTATGGTGG GATTTGGCTC TGCAAGAGAC	2400
CTACACTGTC TTAAAAGAGA TTTATGATGT GCCAGACTCG CTCTTTCATA AGCGTATGGA	2460
CTTTTTGAAT GAAGTCTTGG ATTTGAAGGA CTTTATCAAG GATCCCGTGC GGACTCTTTC	2520
ACTGGGACAA CGGATGCGGG CGGATATTGC GGCCTCCTTG CTCCACAATC CCAAGGTTCT	2580
TTTTTTAGAT GAGCCGACCA TTGGTTTGGG CGTTTCGGTT AAGGATAATA TTCGTCGGGC	2640
AATTACTCAG ATCAATCAAG AGGAAGAAAC TACCATTCTT TTGACCACTC ACGATTTGAG	2700
TGATATTGAG CAACTTTGTG ATCGGATTTT CATGATTGAC AAGGGGCAAG AGATTTTGA	2760
TGGAACGGTG AGCCAACCTA AGGAGACCTT TGTAAGATG AAGACTCTCT CTTTGAACCT	2820
GCTACCAGGT CAAAGTCATC TCGTCTCTCA CTATGACGGT CTGTCTGATA TGACCATTGA	2880
TAGACAAGGA AACAGCCTCA ACATTGAATT TGATAGTTCT CGCTACCAGT CAGCTGACAT	2940
TATCAAGCAA ACCCTGTCTG ATTTTGAAAT CCGCGATTTG AAGATGGTGG ATACGGATAT	3000
TGAGGATATT ATCCGTCGCT TCTACCGAAA GGAGCTCTAG GATGATCAAA TTGTGGAGAC	3060
GTTATAAACC CTTTATCAAT GCAGGGGTTT AGGAGTTGAT TACTTACCGA GTCAACTTTA	3120
TTCTCTATCG GATTGGCGAT GTCATGGGG CTTTGTGGC CTTTATCTC TCGAAGGCTG	3180

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TCTTTGATTC TTCGCAAGAG TCTTTGATTC AGGGCTTCAG TATGGCGGAT ATCACCTCT	3240
ACATCATCAT GAGTTTTGTG ACCAATCTTC TGA TAGATC CGATTCGTCC TTTATGATTG	3300
GGGAGGAGGT CAAGGATGGC TCCATTATCA TGCCTTTGTT GCGACCAGTG CATTTTGCGG	3360
CCTCCTATCT TTTACCGAG CTTGGTTCCA AGTGGTTGAT TTTATCAGC GTTGGCCTTC	3420
CATTTTAAAG TGTCATTGTC TTGATGAAAA TCATATCGGG TCAAGGTATT GTAGAGGTGC	3480
TAGGATTAAC TGTCATTTAT CTTTTTAGCT TAACGCTCGC CTATCTGATT AACTTTTTCT	3540
TTAATATTTG CTTTGGATTT TCAGCCTTTG TGTTTAAAA TCTTTGGGGT TCCAACCTAC	3600
TTAAGACTTC CATAGTGGCT TTTATGTCGG GGAGTTTGAT TCCCTTGCCA TTTTTTCCAA	3660
AGGTTGTTTC AGATATCTTC TCCTTTTTCG CTTTTCATC CTTGATTTAT ACTCCAGTTA	3720
TGATCATGTG TGGAAAATAC GATGCCAGTC AGATTCCTCA GGCACCTCCT TTGCAGTTCT	3780
TCTGGCTCTT AGTGATGGTG GGATTGTCTC AGTTAATTTG GAAACGGGTC CAGTCCTTTA	3840
TCACCATTCA AGGAGGTTAG TATGAAAAA TATCAACGAA TGCATCTGAT TTTATCAGA	3900
CAATACATCA AACAAATCAT GGAATATAAG GTAGATTTTG TGGTTGGTGT CTTGGGAGTC	3960
TTTCTGACTC AAGGCTTGAA TCTCTTGTTC CTCAATGTCA TCTTTCAACA TATTCCATTC	4020
CTAGAAGGCT GGACCTTTCA AGAGATAGCT TTCATTTATG GATTTTCCTT GATTCCTAAG	4080
GGAAATGGACC ATCTCTTTTT TGACAATCTC TGGGCACTAG GGCAACGCCT AGTCCGAAAA	4140
GGGGAGTTTG ACAAGTATCT GACTCGTCCC ATCAATCCTC TCTTTCACAT CCTAGTTGAA	4200
ACCTTTCAGA TTGATGCCTT GGGTGAATC TTAGTGGTG GTATTTTATT GGGAACAACA	4260
GTGACCAGCA TTGTTTGGAC TCTTCCAAA TTCCTGCTTT TCCTAGTTTG TATTCTTTT	4320
GCGACCTTGA TTTATACTTC TCTTAAAATC GCAACAGCCA GTATCGCCTT TTGGACTAAG	4380
CAGTCAGGCG CCATGATTTA CATCTTCTAT ATGTTCAATG ACTTTGCTAA GTATCCGATT	4440
TCTATTTACA ATTCTCTTCT TCGTTGGTTG ATTAGCTTTA TCGTGCCTTT CGCCTTTACA	4500
GCCTACTATC CAGCTAGCTA TTTCTTACAG GAAAAGGATG TGTCTTTTAA CGTAGGAGGT	4560
TTGATGTTGA TTTCTCTGGT TTTCTTTGTT ATTTCCCTTA AACTTTGGGA TAAGGGCTTA	4620
GATTCTACG AAAGTCCGGG TTCGTAAAAG CTAAAGTAAG ACTAAAATCA AGAAAGAAAC	4680
TTATGATGTT TGTAAATTGAA GAAGTCAAGG ATGAAAATCA AAAAAAGGCA GTTGTCTGCTG	4740
AGGTTTTGAA GGATTTGCCA GAATGGTTTG GAATCCCAGA AAGCACACAA GCCTATATAG	4800
AAGGAACCAC GACACTGCAA GTTTGGACCG CCTATCAGGA GAGTGATTTG ACTAGATTTG	4860
TAAGCTTATC CTATTCGAGT GAAGATTGTG CAGAGATTGA TTGTCTCGGC GTAAAAAAGC	4920
TTATCAAGGT AGAAAAATTG GGAGCCAATT GCTTGCTACT TTAGAGAGTG AAGCTCGTAA	4980

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AAAAGTTGCT TATCTGCAGG TCAAAACAGT GGCAGAAGGT TCTAATAAAG ATTATGATCG	5040
AACAAATGAC TTTTATCGAG GTCTTGGCTT TAAAAAGTTA GAGATTTTTC CTCAACTATG	5100
GAATCCGCAA AATCCTTGTC AGATTTTGAT TAAAAAGCTT GAATAATATT ACTTGACATC	5160
TATTCTCAGA GTGCTATACT GTAAGTGTA TCGCCGATTT AGCTTAGTTG GTAGAGCAAG	5220
GCACTCGTAA AGCCTAGGTT ATAGGTAGAT AAACGACTGA GGATTTGAAA AAATAGATAG	5280
GTAGAAGATA ACCGTTAAGC CTTACTCTTA GCGGTTATTT ATATTGTTTA ATAGCGCTAA	5340
TATTTTATCA ATTATGCCTG TTTTCGTGTT TCTGGTAGTT GTTCAAGTTT ATTGCTACTA	5400
TTTTTGATGG TATGAATGTG CTTATAATGT ATCCCGGTTA ACGAAAGTTT TGGACTTATA	5460
CTCTTCGAAA ATCTCTTCAA ACCACGTCAA CGTCCGCTTG CCGTGCCTAT GGTATGACT	5520
TCGTCAGTTC TATCCACAAC CTCAAAACAG TGTTTTGAGT GACTACGTCA GTTCCATCTA	5580
CAACCTCAAA ACACTGTTTT GCCCAATCTG CGGCTAGTTT CCTAG	5625

(2) INFORMATION FOR SEQ ID NO: 2:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 7571 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

CTCTCCAGCT TTCCTTGCGA GTTGGCCATG TTGTGTCTTT AAGAAGCTA AAAATATCTC	60
CAATAAAACG CATCGCTCTC TCCTATCTCG TTTCTCTGTG TGTAGTGAC TTGCCACAAT	120
GCTTACAAAA TTTATTTACT TCTAGTCGTG TAGGCTTGAG GTTCCGCTG ATCTTGATTG	180
AATAGTTTCT CGAACCACAA ACCGCACAAG CTAGGCTTGC TTTTTTTAGT GCCATAACGC	240
CTCCATCTTA TCCATTATAA CAAGAAAGCT AGGCTTTGAC AAGCATCTTA GCGAAATAGA	300
TTGACTATCG AATCCCATAT TGTTTGAGCC TTTTCCTTAA TCTTCGCATC TGAGATAGCC	360
CGGCTAGCCT CATCTACTAG ACTTTGCGCA CGCCCTCGAA TATCAGACAA ATTATCATCT	420
GTCTGGCTAT TATCATTGGT TTGTACTTGT CTTTTTGTAT TGGCTGGTGC AATTCCATTT	480
TGCTTATAAG CATTTTCAAC CGTAAAGGTA CTTCTGGCG TATAAGGTAA AATGGTATTG	540
GCAATGTTTC TAAAGACATG AGCTGCACCG TTTGAAGTAG AGCCAGCTAG ATAGTGGTTT	600
TCATCAGTGG TCGGAAAGCC AAGCCAGTGG CTAATCACTA CATCCGGAGT ATAACCAATT	660
ACCCACTGGT CACTTGTGTA CTCGGATTG AAAACTGCTT CAGTTGTTCC AGTTTTCCCT	720



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GCCATGACAT AGTCTGCAGG CGATGAACTA ATACCGGTAC CGTTGGTGAA AGTCCCCAAC	790
ATCATACTGG TCATCTTGTC AGCTACAGAC TTATCAATCA CCCGTTTTTG TGAATTTTTA	840
TGACTCGCAA TAACTTGTC ACTAGCATTT TCAATTCTAC TAATAAAATG AGCTTCAGGC	900
ATTAAACCTT CATTTGCAAA GGCGGCGTAT GCTTGAGCCA TTTGAAGAGG GTTGGTTTCA	960
ACACCGCTTC CCAAGGCGAC ACCAAGAACA CGGTCGACCT TTTCCATGTT GAGTCCGAAT	1020
TTTTCGCCCTG CCTCAAAAGC CTTGTGCGACA CCCAAATCAT TAACAGTGGC AACAGCAGGT	1080
AGATTAAGCG ATTCTGCCAA GGCTTGATAC ATAGGAACTT CTCGACTCGT TTTGATCCCT	1140
GCATAGTTAT CAACCTTATA GCTGTCATAC TGCATGGTAT GGTATCCAA CTGCTTATTC	1200
AAAGCCCAGC TTGCTTCAAC TGCTGGCGTA TAAACAATA AAGGCTTAAT TGTAGAACCA	1260
GGACTACGCT TTGATTGGGT TGCATAGTTG AAATCCGGA ATCCAGTTT ATCATTTGCA	1320
GCAACTTGAC CGACAACCTC ACGAACTCCC CCTGTTTTCG GTTCGAGGGC TACACTTCCT	1380
GATTGAGCAA ACGTTCCATC CTCTGCCCTC GGAAATAGCG ATGTGTTTT ATAAACAATC	1440
TGCATATTTG CTTGGTAGTT TTGGTCCAGC TCTGTGTAAA TGCGGTAGCC ATTATTGACA	1500
ATCTCTTCCT CTGTTAGATT ATACTTGAA ACAGCTTCAT TAACCACGC ATCAAAATAA	1560
GAGGGTAAC GGTAATCTGA GATTTTTCCT TCATACTTAT CGTGCAATTG CGAAGTCATA	1620
TCAACTTCAG CAGCTTTGGT TTCTTGGTTT TTATCAATAT ATCCTGCTGC AACCATATTC	1680
TGCAAGACAG TATCGCGCCG ATTAGTAGAA TCTTCTACGG AATCAAGGG ATTATACAGT	1740
TCCGGCCCCCT TGAGCATCCC TGCCAGAGTC GCAGCTTGAT CCAGACTCAC TTCTGATGCA	1800
GAAACTCCAA AGTATTTCTT ACTCGCATCT TCTACACCCC ACACACCATT TCCAAAATAA	1860
GCGTTGTTAA GGTACATGGT TAGAATTTGC TCCTTACTAT ATTTTGTCT TAATTCTAAG	1920
GCAAGGAAAA ATTCTTTTCG TTTTCTCTCA ACAGTTTGAT CCTGCGATAA ATAGGCGTTT	1980
TTAGCCAGCT GTTGGGTAAT GGTAGAGCCA CCACCTGAAC GTCCAGCAGT GACAATAGCC	2040
AAGAAAAAAC GGCCATAGTT AATCCCGTCA TTTTATAGA AAGAACGGTC TTCTGTCGCA	2100
ATAACAGCAT TCTGCAAGTT TTTACTGATG TCAGTCAGCT CAACATAGGT TCCCTTTTGA	2160
CCAGACAAGG CACCAGCCTC TTTTCTTCA CGGTCAAAAA TAAGAGTCCG AGTTTTCAAG	2220
GCATTTTGCA AATCATTGAC ATTGGTCGAC TTGGCTACAG CAAACAAATA GATTCCAAC	2280
AGCAAGCCTG CACTCAAACC TAGTATAAGG ATAATCTTG TTAGATGATA ACGACGCCAG	2340
AATTTTCGAA TCGGACCTAC TTGGGCTAAT TTTTTCGAT CACTACGAGA GCGACGTAAG	2400
ATAGTAGAAT CAGACTCCTC TAGTTCACCT GTTCTTTTT TAAAAAGAGA AAGAAATTC	2460
TCAAATAATT TATCTAATTT CATGCGTTTA TTTTATCATC TTCATCATAG GAAGACAAGA	2520

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ATTTAGCTAT TTCCTATCCA AATAGGGCTT TTTTGTGTAC AATATCTGTA TGCAATTCAC	2580
ATTTACATTA CCCGCTCTC TACCTCAAAT GACAGTAAAG CAATTACTTG AGGAACAACT	2640
CCTCATCCCT AGAAAAATCC GTCATTTTTT GAGAATCAAG AAACATATTT TGATAAATCA	2700
AGAAGAAGTC CACTGGAAGG AAATCGTAAA TCCTGGAGAT GTTTGCCAGT TGACTTTTGA	2760
CGAGGAAGAT TATTCCTAAA AGACGATCCC TTGGGGCAAC CCAGACTTAG TGCAGGAAGT	2820
TTATCAAGAT CAACACTTGA TTATTGTAAA CAAACCAGAG GGGATGAAAA CGCATGGTAA	2880
TCAACCAAAC GAAATTGCCC TTCTTAACCA TGTCAGTACC TATGTTGGCC AAACCTGCTA	2940
TGTCGTTTAT CGTCTGGACA TGGAAACCAG TGGCTTAGTT CTCTTTGCCA AAAATCCTTT	3000
TATCCTGCCC ATTCTCAATC GCTTATTGGA GAAAAAAGAG ATTTCTAGAG AATATTTGGC	3060
TCTAGTTGAT GGAAATATCA ACAGAAAAGA ACTTGTTTTC AGAGACAAAA TTGGACGTGA	3120
TCGCCATGAT CGTAGAAAA GAATAGTTGA TGCAAAAAAT GGGCAATATG CTGAAACGCA	3180
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AGGGCGAACC CATCAGATTC GTGTGCACCT TTCGCATCAT AATCTTCCTA TCCTGGGAGA	3300
CCCTCTCTAT AATAGTAAAT CAAAGACAAG CCGGCTTATG CTTCATGCCT TCCGACTTTC	3360
CTTTACCCAC CCACTTACTT TAGAGAAGCT AACTTTCACT ACCCTTTCAA ATACATTTGA	3420
AAAAGAATTA AAAAAGAATG GATGATCGTG TCATCCATTT TTCCATATAA AAAAGCAAGA	3480
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ACCAATTGTT TACCGTCAAC GTCAAGAACT TTAGTTTGAG TTGCGTCAAA CAATGAACCG	3660
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AAGTTGTCTT GAAGAGCTTT AGCCATTGGA GCCAAGCAGT TTGTAGTACA TGAAGCACCT	4080
GAGATAACTG TTTCAGTACC GTCAAGAACG TCGTGGTTAG TGTGAATAC AACTGTTTTA	4140
ACGTCGTTTC CACCAGGAGC AGTGATAACA ACTTTTTTAG CTCCACCTTT AAGGTGTTTT	4200
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TATTTCAACA AGTGTGCAAG CATACTGGA TCTGTAAGGT CGTTGATGCG TGTAACCTCA	4440
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TGAGTTGAAT TGCAAGTATG GCCATTGTTT TTCTATGTTA GTTTCCTTTT AAGACTGTAA	4680
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TAGGATTGTA CTCAGGCGAG TAGGGAGGAA GAGGTAAAAG TTTATGCCC AACTCTTCGC	5880
ATAAAAGTTC TAGCTTCCCC ATTCTATGGA ATCTTACATT ATCCATAATA ATAACCGATG	5940
GTGTGTTTAA TGTGGTAAG AGAAAATTCT GAAACCAAGC TTCAAAAAAG TCGCTCGTCA	6000
TCGTCTCTTC GTAAGTCATT GGAGCGATTA ATTCACCATT TGTTAGACCT GCAACCAAAG	6060

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AAATCCTCTG ATATCTTCTT CCAGATACTT TGCCTCTTAT TAATTGACCT TTTAATGAGC	5120
GACCATATTC TCGATAAAAA TAAGTATCGA ATCCTGTTTC GTCAATCTAA ACAGGTGCTA	6180
GGTGCTTTAA ACTATTAAAA TTCTTAAGAA ATAAGGCTAC TTTTCTGGG TCTGTTCAT	6240
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TTGGATGACA GCCAAATCA GAAGCTATTT CAGTCAAATA AGCGTCTGGA TTGTCAGTAA	6360
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TCCCCATCCT TAAATTGATG AGGATTCTGG AAGGTCACCT CGGCATCAAA TAGGGTAAAA	7380
ACCCCTTGAA AAACGGTTAG CCCCCTAAA ACACCAGCTT CCTTGGCAAA AAGCGACACC	7440
TTGGCTTGGC CATGATGATC AAAAATGGCA TTGGTACTGT AATCTTCGGA ATGAACATCT	7500
TCTCGCAAGG CTGCTTTCAA TGTATCATCT ATTTGAAAAG GGGTTAAATC AGTTGAAATG	7560
ATTGACATCA C	7571

(2) INFORMATION FOR SEQ ID NO: 3:

- (1) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 26385 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double

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(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

TTTGCTAGTG GCTTAAATTC TTCAGGAAAA TCAGGCGTAT CTAAAAGTCG TGTCGTTTTT	60
GTTTCATCTA TATAAAGACT TCCTGCTCCC CCTACAACTA GAAAACGTGT CTGTGTTCCA	120
GCAAGAAGCT GATTAAATAG TTCGATTGAT TTGCTGTGGA GCGGTAGCGT ATCTGGTGTA	180
TAAGCACCAA ACGCTGAAAT AACAGCATCA AATCCAGTAA GATCATCTTT TGTCAACTCA	240
AATAATCTT TTTTAATAAT AGACTCAGCT TGACTTTTGT TTTCAGAACG AACATAGCC	300
GTTACTTCAT GTCCTCGTTT GACTGCTTCT TCAACAAATG CTTTCCCGC TTGTCCATT	360
GCTGCAATAA CTGCTAGTTT CATTTTTTAT ACCTCTCTTG TTGTAATTAT TTTAGTTACA	420
GAAATTGTGA CACTCTTAAT AATCAATGTC AATAGTCTTG CTTAATTATT ATCAAAATAT	480
TTCTACCAAG AAACTAACC ATGATTCTAG TGAAAAAAA TCTTCTTTGT CAACAAATTT	540
ACTTCTTGT TTTAAACATG CTATAATAAT CATAGCAAGA GATCTAAGTT GTCTGTTTTT	600
TTAAACGAG GTGATTATCA TCGGTAGATT CTATTCCCAT CTCCCCTACT ATCTGGTCAT	660
ATTATCTTT TATTGGCCAC TTTATGAGTT GTTCTTACTA GTTGTTCCTG ACCCCCTTAC	720
ACTCAAGGGA CTCTATATAA ACAATCTTCT CTTCTTTACA CCTCTGGTAA TCTTGATTGT	780
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GCTCTTTTAC TTTACTATCA TAACCTTGG TGAGTTTATA CTAATTTACT TGCTAATCTA	900
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CTGGTAAATT CAACGGCAAA CTCATCGACA CTACTCGCGC TATCACTGAA GATGGAAGCA	1800
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CCATCGAAGA TGGTTTCTAC TACGATACTG ACAACACAGC TGGTCAAATC TCTAACGAAG	1980
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GCTACGGCCA AAAAGAAACA CAAACTGTCT CAGTTGATAA TTTTGTTCAA GCTATCCTAG	3540
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CGCACTGTCTG TTCCTTTTCC GACCTCAGAC TCGATACGAA TCTGGTGCCC CAGTTCTTCA	3720
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CGGCTGGACT CAATACTACT CACCATACTA CAACACTATT GATGGATTG CTGAAATGAG	22140
AACACTTTGG TTCCCAATGT TGCAATCTGT ATCAAATGGT GACGAAAAAC CAGCAGATGC	22200
TTTGAAAGCC TCACTGAAA AAGCGAACGA AACAATCAA AAAGCTATGA AACAATAGTC	22260
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CTCTACACAG ATAGTGTAAG AAAAGGGGGC TTTTGTTTAA AATGTAAGAA ACTGTACAG	22380
AATTAAAATG AAGTTCTTAC ATAAGCGAAT CATAAAAAAT TTCATTTTGA TTTTAAAAA	22440
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TCAAAGGCTC CAAACGCTAT TCTATAAGCG AGAAACTAAA ATCGG	26385

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## (2) INFORMATION FOR SEQ ID NO: 4:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 2716 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

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AAAGAAAATG ATATAATAGT AGTTATGGAG AAAAAGAAAT TACGCATCAA TATGTTGAGT      180
TCAAGTGAGA AAGTAGCAGG ACAGGGAGTT TCAGGTGCTT ACCGTGAATT AGTTCGTCTT      240
CTTCACCGTG CTGCCAAGGA CCAATTGATT GTTACAGAAA ATCTTCCAAT CGAGGCAGAT      300
GTGACTCACT TTCATACGAT TGATTTTCCC TATTATTTAT CAACCTTCCA AAAGAAACGC      360
TCAGGGAGAA AGATTGGCTA TGTGCATTTC TTGCCAGCTA CACTTGAGGG AAGTTTGAAA      420
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CGTGAAAAAG TGACCTATAT TCCTAACTTT GTCAACAAGG AAAAATGGCA TCCTCTACCA      600
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AGTATTCGAA CCTTGAAAAC AGAACTTGAA AAGCAGGGAC ATGCTGTTTT TATCTTTACG      1320
ACGACAGATA AGGATGTCAA TCGCTACGAA GATTGGCAAA TTATCCGCAT TCCAAGTGTT      1380

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TTGGGGATTT GGATTGCGCG TGAATTGAAA ATTCCAGTCA TCCATACCTA TCACACCCAG	1560
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CGTGACTTGC TATCTGATTA TAAGGTCAAG GTTGAAAAAC GGGTCATTCC TACTGGGATT	1740
GAATTAGCCA AGTTTGAGCG TCCGGAAATC AAGCAGGAAA ATTTGAAAGA ACTGCGTAGT	1800
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TACTTGAAAA GCTTAGCCAG TGGAAACCTT GTCATTGCTC ACGGAAATCC TTATTTGAAC	2160
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CAAGTCATTT GGGGTGTTCT TACTTGCTGT TACGGAGCTG GAATTGTAGC TTACATTATT	2700
TTATGGATTA TCGCGA	2716

## (2) INFORMATION FOR SEQ ID NO: 5:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 13926 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

CTTTGGTTTT GCCTTATTC AAGACATGAGG GCCATCAGGA ATGATCTGAA ACTGCGAATC

60

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AATTAGTAAG GTTGGATAAG GGTAAAGTCC TGCTATATCC GTTAAATCAA GTGCTTCAA	180
CTCCTCAGAA ACTCCGACCA TAAGAGTCTT GTCTGCTCCC TGTTTTTCAA ATACTCTTTT	240
GGGAAGTAGT TTAATAATCA GCAATTGAAG ATAAATAGG ATATCCCTG CTAATTTAAG	300
CGGGCATCCT GACAGAATCA AAGCTCGAAG ATTTGGTAAA TCGTAACTGG AAAGTTCTAG	360
TGTCAGGGCA GCACCTAAGG ACAATCCAAT CAAAACAAAA GGTTCGTCTT CTTGAGCTAG	420
GTGCTGATAA ACTCGCTCTT TAGCTTGTTG ATAGTTACTA ACTCCAGAAG GAAATAACTC	480
GATAGCCTCA GAAGGATAAT CTGTCACTAG ATTCCGAAGT TCTTTCCAAG ACTCTGCTGA	540
CTGCCCTAAC CCATGCAAAA ATATTAATTT CATCTAGTTC TCCTCAAGGC TTAATTCATA	600
CAAGCCTCTC ACTGCATTAC AGCCGTAAAT AGCTTCTGCT TGGGTAAAT CTGCCAAGGT	660
CAAGACTTTC TCTTCTACCT GTCCTGTTTC TAGCAAATGC TGACGGTAAA TTCTGGCAA	720
GATTCCAAGT CGGATAGGCG GTGTGTAGAG TTTCCAGCG ATTTTCAGAA CCAAATTTCC	780
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AGAAACTGAA CTAGCTTTAT CAATTTGATT ATTTAACTCA CTTTATCAA CTGGTTCTTT	6840
AGTACCAATA CCTTTATTT TATCTTCTGG TTTGCGTGTT TCCTCTACAG CCTTCTCTTC	6900
TTCAAGAACT TCTGGTTGCT TTTCTGGCTC AACTGGTGCC GTTGGTGCCT GTTCGTCTTC	6960
TCTTGGCGCG ACTGGTTCAC CTGCTTGTTC AACTTTTGGT TCCTCTGTTG GTTCTGTTTG	7020
TTTTTCTACA GCAGGCGTTT CAACTTTTGG TTGTTCAATA GATTGATTAA CAGTCTCCTC	7080
TTTTGGTTCT ACAGTTTCTT CAGCCTTGGT ATCTGGAGTT GACTCTTCTT GTTTCGGTGT	7140

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TTCTCTACA GCCTTCTCTT CTTCAGGAGC TTCTGGTTGC TTTTCTGGCT CGACTGGTGC	7200
CTTTTCGTCT TCTCTGGCG CGACTGGTTC ACCTGCTTGT TCAACTTTTG ATTCTCAGC	7260
TGGTTTGTCT GATGGTTGAC TTTCTGGCTT AACTGCTACT TTTTCTCTG GTTTTGACTC	7320
AACTTCTCCA CCTACTTCTT CAACTGGAGC TGGTTCTGCT GAATCTTCTT TCCCCTCTTC	7380
TACTTTAGGA AGGGTGTCTT CAGTAGGTTT TACCTCCGAT TTTGGTTCCTT CCTTTGACT	7440
TTCTTCTGTT TTAGGTGCTT CTTCTTTTGG AGCTTCTCT GTCTCTACTA CTTGGTTTTT	7500
TGTCCTAGCT TGCTCCTGAT TTGTTATTGA TTGAGGAGTC TCAACTTCGA CCACAGTCAC	7560
CTCTCCAGGT TTTGCTGAGG TTTCTTCTAA AACAGTGTCC AAGCCAAGCG TTTTGAGGAT	7620
GTCACCTGAT AGATAACCAA CATAGCGATA GCCCTCCATT TCAACAACAC CCTCTCGACT	7680
AGCCAGCGCT AGGGTCGCAA CTGGGTCTAC AGCCCCTGCA CTAGGAAGAA CTACCAATCC	7740
CATAGCTCCA ACTAGAAAGA CGCTAGCAAT TTTCTTTCTC TTGTAGATTA AAAGCAAGCT	7800
CCCAACAGTC AGCAAACCAA AAGCTGTCAA AACAGATGCT TCTGTCCCTG TTTGAGGCAA	7860
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GTCCACTACA GAAGGAGCCA TCAAAAGGCT TCCAAGAAAT ACAGAGCCTA CAACTCCCTT	8040
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ACTAGCCAGT GCCCTTACAT GGGCATGACC AATCTCTCTC AAAATAGGGC GAATCGGAAC	8220
CTGAACATGC TTGACATGCA TGCCAATTGC AGTGTCTCCG ATATCCAATC CAGCATGAGC	8280
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GTTGATCGAC	ATTTTGAAGA	CCAACTCCCC	CACGTTTGAG	TTGAGTTGA	CTACTATCAC	8940
CAGCATCTTG	GAAGCCAACG	CCATCATCCT	CAATACGGAT	GACCAATCCC	GAATCCTGTT	9000
TCTGGACAGA	AAGTTTAATA	TGGCCCTGAC	CTTCCTTTTC	CTTAATGCCA	TGGTAAAGAG	9060
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TTTCATTAAT	TCGTATTCC	AGCTTATCTC	CATAGCGTTG	TTTCTGGATA	AAGAGATACT	9180
GGCGGACATG	ATTGATTTCG	TCAGAGAGAC	AAATCAAGTC	CTTGCCTTGA	TTGAGCGCCA	9240
AGCGGAAATA	GGTTGCCAAG	GACTTGGTCA	CCTGCACCAC	TCGCTGACTA	TCATGAAAT	9300
CAGCCATCCA	GATGATGGTG	TCCAAAGTGT	TATAGAGGAA	ATGTGGATTA	ATCTGGCTCG	9360
AAAGGGCTTG	AAGTTGGTAC	TGACGGGTCG	TTTCTTCCTG	GCTACGAATA	GCTACCATCA	9420
ACTGATCAAT	CTGATCCAAC	ATAGCATTA	ATTGGCGAGT	TACTTCTCTC	AGTTCATAGG	9480
CACCAACTTC	CTTGGCACGA	AGATTTTGAG	CACCAGAAGC	AATTTCCAAC	ATGGTTTCTC	9540
TCAAATCCTT	CAAAGGAGCA	ATCCAGCGTT	TAAGACTGAA	CCACACTAAG	CAGAGACAGA	9600
CAAGAAGAGA	TGTGACACTG	GCCCCAAGCA	AGGTCCACAA	GAGCTGACTC	CGAACCTGGT	9660
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GACTGACGTA	GGATTGTGA	CCAGGAGTAT	AACCCTGACC	TGTATCGATG	TAGGGTTTCA	9780
TAGCCTCCAT	TTTGCTAGAC	GAATATAAA	CTGTGTGTTG	AGGATGGTAG	ACAAATTCAT	9840
GGTTTTTATT	GATAATGAAG	GCAAAGCCCT	GCTGCCCCAA	CTGGAGTTGA	TTGAGATAGG	9900
CTTCCAGAGT	TTCATAAGAA	ATATCCAAAC	GAAGCACACC	AAGATTGGCT	CCCTTTGCAT	9960
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AGGAAGTTT	CATCTGCACA	CTGTCATCTG	TAGAAATGAC	CTGACCAGAT	TTGGTCACCA	10140
GCACAACAGT	TTTCAAGTCC	TTATCTGACT	TCAAGATGGT	CAAAAACAAA	TCTCGGATTC	10200
CCTCGACCTT	GTCTTGAAGT	GGATTCTCAG	CATAGGCCAG	AACATCCGTC	TGCTGGGTCA	10260
AACCAGTCGA	GGTGGTTTCT	AGTTTTTTGA	TATAAGACTG	AATAAAGTGG	CTAGTCTGGC	10320
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CACACCTGCA	ATCTGCTTAA	AACGTTGGGT	AAAATAGTTC	ATATCTTCAA	AACCAACCTT	10560
CTCTGCGATC	TCATAAATCT	TCAGATCTGT	AGTTAAAAGC	AAGAGCTTGG	CTTGTTTAAAC	10620
ACGTTCTCTC	ACCAGATAAT	CCTGAAAAGG	CAAGCCCAAC	TCTTTCTTAA	TCAAGGAACT	10680

CAGATAGGTC	GGACTAAAAC	CTAAGTCACT	GGCTAAAGAC	TTTAAACTAA	ATTGGCTATC	10740
AGCCAGATGA	GACTGGATTT	TCTGGGCCAT	GTTTCCTTCA	AACCTATTAG	TCAATAAAATC	10800
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AGACAAGGCA	TAATCAAAAT	CATCGTAACC	TGTTAAAAAG	ACCAAATGAA	CCTGAGGATA	10980
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TACCAGATAT	TCATCTTCTA	CGATTAAGAT	TGTGTAGGTC	ATGCTCTGCT	CCTTTACCAC	11220
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TGACGAAGTC	GATAACCTTA	CATACGGTAA	GCGCAGCGTG	ACGTGGTTTG	AAGAGATTTT	11460
CGAAGAGTAT	TAATCAACAT	AATCTAGTAA	ATAAGCGTAC	CTTTTCTTTC	CATTTGGTCT	11520
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GGACCATCCG	TAAAGACATG	CCCAAGGTGA	GAATCTCCTA	CTCGGCTCCG	CACTTCCATA	11640
CGCGTCATAT	TGTAGGACTT	ATCTTCTTG	TAGGTGACAA	CATCTGGACT	GATGGGTTGG	11700
GTAAACTAG	GCCAGCCACA	ACCAGACTCA	AATTTGTCTT	TTGATGAAAA	GAGAGGTTCC	11760
CCAGTTGCTA	TATCCACATA	GATACCGGAT	TCAAATTTAT	CCCAGTAACG	GTTTGAGAAA	11820
GCTCGTTCTG	TTTGATTTTC	CTGGGTAAGT	GCATACTCCT	CAGGTGACAG	GGTCTTTTTC	11880
AATTCCTCAT	CACTTGGTTT	TGGATATTTG	CTGGCATCAA	TGACAGGATA	GGCCGCCTGA	11940
TTAACATTGA	TATGGCAGTA	GCCATTTGGA	TTTTTCTTGA	GATAGTCTTG	ATGGTAATCC	12000
TCAGCCACCA	CAAAATTCCT	CAAGTTTTC	TTTTCAACTG	CTAGAGGTTG	ATCGTATTTT	12060
TTAGCCACCT	CATCAAAGAC	TTGGTTAATC	ACTTCCAAAT	CCTTGTCTATC	TGTGTAATAA	12120
ACACCAGTAC	GGTACTGGGT	CCCCACATCA	TTTCCTTGTT	TATTTTTTGCT	GGTTGGATTG	12180
ATAATGCGGA	AATAGTGAAG	CAGGATTTCC	TTGAGAGAAA	TTTGCTTGGC	ATCATAGGTG	12240
ACATGGACGG	TTTCTGCATG	ACCTGTTTGG	TTAATCAATT	CGTACTTGGT	TGTTTCTCCT	12300
CTACCATTTG	CATAGCCTGA	AACGGCATCC	GTCACCCCGG	GAACACGTGA	GAAATATTCC	12360
TCCACTCCCC	AGAAACAACC	TCCAGCTAGA	TAAATTTCTG	GCAAGTCTGC	GCTTTTACTA	12420

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 GCATCTGTCT GCCCTGCATT TCGTATCAAT AGAACATAGA AACCGGTTAT GGCTAGAAAA 12540  
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 TTCCTTCAAA GTTTGCAAAA TTGCATCTTT TTCCATGAAT CCTGGATGTG TTTTGACCAG 12660  
 CTGCGCTTCT TTGTCTATAA AGGCTTGGGT TGGGTAAGAA CGGACACCAT AAGTTTCCAA 12720  
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 CACATAGTCA TCACCAGCTT CTTTAGCAAT CTCATCCGTA TCTGGAAGAC TAGCCAGACA 12900  
 GATGGAACAC CAAGAAGCCC AGAATTTGAG ATAGACTTTC TTGCGCTTGT AATCAGATAA 12960  
 ACGGTAGGTC TTGCCATCTA CTCCCATCAA TTCAAAATCA GCCACCTCTT TCCCTTTAGC 13020  
 TGGCGTTGTT TTACTAGCTG TCTGCTCCGT CTTCAATTCA TCTTTCGTTT GGTGTTCACT 13080  
 AGTCACGGAC TTGCCTGAAC AAGCCGTCAA ACAAGGAGC GAACCTGCTC CAAGAACACA 13140  
 TGTITGCCAT TTTTTCATAT TGATATTCCT TTCCATTTTA TTCAAATAAT TGACTTAAAA 13200  
 TTGAAGCATT TCCAAACAGA ACCAAGAAGC CCATCACAAT AATGAGAAAA CCACCCACTT 13260  
 TTTTGAGGAT TCCGAGATAG GGATGAAGTT TTCGGAAATG TTTCAAAACA TAACTAGAGG 13320  
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 CTCCCTGCCA AGCTCCTGAA CCACCTGAAG CCGCCAAGGC CAAAACAGAC CCCAGAACCG 13440  
 GCCCCACGCA AGGCGTCCAA GCAAACTAA AGGTCAAGCC CAATAAAAAT GCCTGACTAT 13500  
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 ATTGGAACCA AGAAGCATAA AGCAAATCGC CTAAAAACC AGCTCCATAG CCCAACAAAA 13680  
 TAAATATAAA GGAAATTCCT GCTATAAAGG CCAGAGTTCG TAATAAACTA GTAAGTGA 13740  
 TTGAAAATTT GCCGCTAGAA GCCTGAGCAC CATCCTTATC ATCTAGTAAC ACTCCTGTAT 13800  
 AGACCGGTAA CAAAGGTAAG ATACAAGGAG AAAAGAAGGA TAGAATCCCT GCCAAAAAGA 13860  
 CACTTAGAAA AAAGAAAATA TGACCCATAA AGTTCCCTCT ATCATTTTAT TGATAGATT 13920  
 ATTATA 13926

(2) INFORMATION FOR SEQ ID NO: 6:

- (1) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 20199 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

CCCAGCAGAA AAATGGCATT TGGAGATAAT GGAAATCGTA AAAAACTAT GTTTGAGAAA	60
ATAACCTTGT TTATCGTGAT TATCATGCTA GTAGCAAGTT TATTGGGAAT TTTTGCAACT	120
GCAATTGGTG CCCTCAGTAA TCTATAAAAT AGATTCAAGA AAATTTAGTG ACTGGGATTT	180
CCCAGCCCTT TTTTAAAGTG AGAAGAAATA ATGAGTATGT TTTTAGATAC AGCTAAGATT	240
AAGGTCAAGG CTGGTAATGG TGGCGATGGT ATGCTGCCT TTCGTCGTGA AAAATATGTC	300
CCTAATGGAG GCCCTTGGGG TGGTGATGGT GGTCTGGAG GCAATGTGGT CTTCGTTGTA	360
GACGAAGGAC TACGTACCTT GATGGATTTC CGCTACAATC GTCATTTCAA GGCTGATTCT	420
GGTGAAAAAG GGATGACCAA AGGGATGCAT GGTCTGGTG CTGAGGACCT TAGAGTTCGA	480
GTACCACAAG GTACGACTGT TCGTGATGCG GAGACTGGCA AGGTTTAAAC AGATTTGATT	540
GAACATGGGC AAGAATTTAT CGTTGCCAC GGTGGTCGTG GTGGACGTGG AAATATTCGT	600
TTCCGCGACAC CAAAAATCC TGCACCGGAA ATCTCTGAAA ATGGAGAACC AGGTCAGGAA	660
CGTGAGTTAC AATTGGAACT AAAAATCTTG GCAGATGTCG GTTTAGTAGG ATTCCCATCT	720
GTAGGGAAGT CAACACTTTT AAGTGTTATT ACCTCAGCTA AGCCTAAAAT TGGTGCTAC	780
CACTTTACCA CTATTGTACC AAATTTAGGT ATGGTTCGCA CCCAATCAGG TGAATCCTTT	840
GCAGTAGCCG ACTTGCCAGG TTTGATTGAA GGGGCTAGTC AAGGTGTTGG TTTGGGAACT	900
CAGTTCTCC GTCCATCGA GCGTACACGT GTTATCCTC ACATCATTGA TATGTCAGCT	960
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AATCTTCGCC TCATGGAGCG TCCACAGATT ATTGTAGCTA ATAAGATGGA CATGCCTGAG	1080
AGTCAGGAAA ATCTTGAAGA CTTTAAGAAA AAATTGGCTG AAAATTATGA TGAATTTGAA	1140
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GATGCTACAG CTGAATTGTT AGACAAGACA CCAGAATTTT TGCTCTACGA CGAGTCCGAT	1260
ATGGAAGAAG AAGCTTACTA TGGATTTGAC GAAGAAGAAA AAGCCTTTGA AATTAGTCGT	1320
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GATGAAGCCC TTCGTGCGCG TGGAGCTAAA GATGGGGATT TGGTCCGCAT TGGTAAATTT	1500
GAGTTTGAAT TTGTAGACTA GGAGACTGGT ATGGGAGATA AACCGATATC TTTCCGAGAT	1560
GCGGATGGTA ATTTTGTTC CGCCGACAC GTTGGAAATG AAAAGAAATT GGAAGAATA	1620

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TCTCAGTAAA GAAGCTAAAA AATCCCGTGC CTCATCAGAC ACGGGATTTT GTGGTACGAC	1740
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AAGCAGAGAT GTACTATTCT AGTTTCAATC AACTATATTG TTATAAATTG ATTTGAATTT	1920
CAAAATTAAA TTGTTTGATT CTTATTTCOA TTTGTTATAG TATATCTGAT GTCAAACTTC	1980
TCGGCGAGTC AAATAGCGAT TCCCAAGCCT GACTATCGTG AGGTAGCGGA TTAATATGGT	2040
CTGGGGATAG ACCGTTTAA GTCTGACGCT GGAAATAAGA ATTGTCAGAA GAAGGGATAG	2100
CGAAATCGTG GCTCTACGAA CAGGAACGTG ATAATAAGGC GTATATAGCG GATPAGAGGG	2160
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TATTCAAGAA TACGCTGAAA GTCGTGGTTA CCGTGTAGTG CGTGATTGG TTGGTCATGG	6540
TGTTGGCCCA ACTATGCACG AAGAACCAAT GGTTCCTAAC TATGGTATTG CAGGTCGTGG	6600
ACTCCGTCTT CGTGAAGGAA TGGTCTTAAC CATTGAACCA ATGATCAATA CAGGCGATTG	6660
GGAAATTGAT ACAGATATGA AAAGTGGTTG GGCGCATAAG ACCATTGACG GTGGATTGTC	6720
ATGTCAGTAT GAACACCAAT TTGTCATTAC GAAAGATGGA CCTGTTATCT TGAAGTACCA	6780
AGGTGAAGAA GGAACCTATT AATAAAAAGT GAAAAGACTA CTGGAAGTTT ATTTTGATAA	6840
AAAATCCAGT AGATCTTTTC ATAATAAAC GCATTGTATC AAGTGTAGG GGCTGATATC	6900
ATGCGTTTTT CTGCTTTTAA GATTTTTC AACTCTGTT GTAAGCGCAT CATAACAAAG	6960

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GGTCTAGGAT TCAGGGCTCT CCTCCTATAT ACTATTAGTA AAGTAAACT AAGGGAGGAT	7020
ATTTTAGTGT CGCAGTCTAT TGTTCCTGTA GAGATTCCAC AATATTGTCG TTTTGATTCT	7080
AAAAAGAGAA ATGGAATTCT GTTTAATGTT CGTATTGCCA ATCTTAAATT TACTTTTTTA	7140
TATTATACTT CCTGCGAAAC AAAATATGGT ATAGTAGTTC TATGAATGAT GAAGCAAGTA	7200
AACAACCTAAC TGATGCACGA TTTAAGCGTC TTGTTGGTGT TCAGCGTACC ACTTTTGAAG	7260
AGATGTTAGC TGTATTAAAA ACAGCTTATC AACTTAAACA CGCAAAAGGT GGACGAAAAC	7320
CTAAATTAAG CCTAGAAGAC CTTCTTATGC CCACTCTTCA ATAGTGCGAG AATATCGAAC	7380
TTATGAAGAA ATTGCGGCTG ATTTTGGTAT TCACGAAAGC AACTTTATCC GTCGGAGCCA	7440
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GTCAAGGGAG AATTGTTTTCT TTGGATATCG CTGTGAACTA TAGTCATGAT ATGAAGTTGT	7680
TCAAAATGAG TCGTAGAAAT ATCGAACAAG CTGGTAAAAT CTTGGCTGAC AGTGGTTATC	7740
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AAAAATAATA AAAATCGCCG TCCTAAAAAT CTCTGGACTC AAAACGCTGA TGGGGAGCAA	9120
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AATGCCCAGT CCCGTACAAT TGAGGAAGCC CTGCTCAAGT CTAACATTCC TTATACCATG	9300
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TATCTTTGAG GAAGGTTTTA AAGACAGTCT GAAAAATAGG ATGAACCTGC TTAAGATTGT	19980
CCTCAATAAG TCCGAAAAAT TTCTCTGGTT CCTTATTCTG GAAGTGAAAA AGCAAGAGTT	20040
GATAGAGCTG ATAGTGGTGT TTCAAGTCTT CCGAATAGCT CAAAAGCTTG TTTAAATCT	20100
CTTTATTGGT TAAGTGCATA CGAAAAATAG GACGATAAAA TCGCTTATCA CTCAGTTTAC	20160
GGCTATCCTG TTGAATGAGT TTCCAGTAGC GCTTGATAG	20199

## (2) INFORMATION FOR SEQ ID NO: 7:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19702 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

ACCCGATGTA TCAGCGGATA TTTACTCTAT TTTTCAAACG ATGTTATACC CACAATAAAA	60
GAAAAAAGAC CCTAAGGTCT CCTTTGCTTT TATTATTAAA CGCGTTCAAC TTTACCTGAT	120
TTCAAAGCAC GAGCTGAAGC CAAAACTTTT TTAGGTTTAC CATCGATAAG AACAGTAAC	180
TTTTGAAGGT TTGGTTTTAC GGCACGTTTT GTTTGGTTCA TCGCGTGTA ACGGTTGTTT	240
CCTGATACAG TCTTACGACC TGTAAGTAA CATACTTTAG CCATTGTGTT TTCCTCCTAT	300
TAGATCTAAT ATAGCGGATG TGCTAGCACC ACATACCGTA CTATGTTATC ACATTTTCTT	360
GTTTTTTGCA AGGSAATTGG AAGATTTTTT ATTTGTGTCT TAAATCAGGT CTTCGGTGAC	420
ATTTCTGCTC TCCACATGCC ATCGTTGATT AACAGAACAC CAGAATTAAT ATTATGTGTA	480
TAAAAATCAT CTCTAACTGC AGCTAAGGGT ATAGCCGTCA AGTCCAAATC CCACAGCTCA	540

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TCTATCGATT TTCTTACAAC AATATCTGAA TCCAAATACA GTACACGAGA CTCGCTTACA	600
TACTTTGGAA TAAAATACCT AAAAAAGCCG CATATGAAAG TCCCTCAAAG GGGAGACGAT	660
AACCTTTCAG AATATTACTG TCAATCTAAA CATTACAAAT CTCACTATTC AAAGTCTCTA	720
GTCTTTTTC CATCAATTGG AACCATTCTC GCGGAAGGTC ATCATTAAAA ACATAAACT	780
TAAGATTATA ATGATGAACA CAAAGAGATT TTATTGTTGT TTCAACTTTA TCCATAAAG	840
CATTATCTGC ACCTAAGACA ATCGCTTTT TCTCTCTTT CACTTTTTAT CTCATTTCTT	900
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TATTTTCGCC TATTCGTTTCG TAAAACCATA CCAGTGGAGA TTTTAGATGA AGTCCCATTA	1020
CGGTTTACAA TTTTACATT ACGACACOGA GTTTTACAAA TCGATTTTCAT TTGCCAAACG	1080
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TACGGTCACG GTGACGAGGG TCCATGTTGG CTTGGATTTT AAAGACAAAG CCTCAGAAAT	1860
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CATTTAAAAG CTCAATGTCA TCCTTGACTT GCTCGTAGAA AGGATTGCTA CCAAAGAGTT	2100
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AGCTAGCAAT GCCCAAGATT TCTTCCAATT CTTGCAAGAG ATCCAAAGGC TCACGACCGT	2280

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CCACCGCCAT CAAGGTACGA TAGGTATCTT CTGAGAAGTC CTCGTGCCCT GCGGTGTCTA	2460
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TTACCGTACC AGCCTCACGA ATCTCACCCC CAAAGTAGAG TAACTGCTCA GTGATGGTTG	2640
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AAACTGCTTC	ATCTGCCAAA	AGCGTATGAA	GAGCTTCCTT	ATCAGCAGTT	GAATAAACCG	13200
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CATAACTGGG	TATTGAGGAA	AGTGGCCGTT	AAAGAAAGGC	TCGTTGATGG	TCACATTTTT	13620
GATAGCAACA	ATGGTATCCT	CGCTCACTTC	CAAGACACGG	TCCACTAGAA	GCATAGGATA	13680
ACGGTGGGGA	AGAGCTTCTT	TGATTCTTGG	AATATCGATC	ATTTGATACG	TACCAATCCT	13740
TTACCAAAC	CAACCATTTC	TTCGTTAGAG	ACGAGAATTT	CCGTTACCAC	ACCATCCTTA	13800
GGAGCTGGGA	TTTCATTTCAT	GACTTTTCATG	GCTTCGATAA	TTACCAATGT	TTGACCTTTT	13860
TTGACACTAT	CACCAACTGT	AACGAAGGCA	GGTTTTATCTG	GTCCAGCAGC	CAAGTAAACC	13920
ACTCCAACAA	GTGGACTCTC	TACAAGATTT	CCCTCAGTAG	CCACACTTGC	TTCAGCTGGA	13980
GCTGGAAC	CTTCTGCTAC	AGTCTCTGCT	GGAGCAGATG	TAGGAGCTAC	TGGACTCGGT	14040
GTTGCTAGAA	CGGGTGCTGG	AGCGACTTGA	GTTGCAACTT	CAGGCACAGG	TCTTGCTTCA	14100
TTCTTGCTAA	ACTGCAACTC	ATCCGTCCCA	TTTTTATAAG	AAAATCTCT	CAAACTTGAC	14160
TGGTCAAATT	GAGTCATCAA	GTCTTTAATA	TGTTTTAAAT	TCATACTTAT	CTATTCTCCC	14220
AACGTTTGAA	AGCAAGAACT	GCATTGTGGC	CTCCAAAACC	AAAAGTATTT	GAAATAGCGT	14280
ATGGAATTT	TTTCTCCAAG	CCTTGTCCTAT	AAACGACATT	AGCTTCGATA	TAATCTGATA	14340
CTTCACTTGT	CCCAGCTGTC	ATTGGTACAA	AGTTATGACG	CATAGCTTCG	ATGGTGACGA	14400
TAGCTTCTAC	TGCACCCGCA	GCCCCCAGCA	AATGTCTCTGT	AAAAGACTTG	GTTGATGATA	14460
CAGGTACTTC	CTTACCAAGA	ACAGCTACGA	TAGCACCAC	TTCTCTTTT	TCATTGGCAG	14520
GAGTTGACGT	TCCGTGAGCA	TTGACATAGG	CTACTTGCTC	TGGAGAAATC	TCAGCTTCTT	14580
CCAAGGCTAG	TTTGATGGCC	TTGATAGCTC	CCTGACCTTC	TGGATGTGGA	GAAGTCATGT	14640
GGTAGGCATC	ACAAGTATTT	CCGTAACCAA	CCACTTCAGC	CAGGATAGTA	GCTCCACGTT	14700

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TTTCAGCGTG	TTCAAGACTT	TCTAGAACCA	ACATCCCTGA	ACCTTCACCC	ATAACAAACC	14760
CATTGCGATC	CTTATCAAAT	GGGATCGAAG	CACGAGTTGG	ATCCTCTGTA	GTAAGAGAG	14820
CTGTTAAGGC	TTGGAACCA	CGGATGGCAA	AAGGTGTGAT	AGAAGCTTCT	GTTCTCTCCA	14880
CCAACATCAC	ATCTTGAAA	CCAACTTAA	TGGAGCGGAA	GGCATCCCCA	ATCGCATCAT	14940
TTGATGAAGA	GCAGGCAGTA	TTGATAGATT	TACAAACACC	GTTTGCACCA	AAACGCATGG	15000
CTACATTCCC	AGAAGCCATA	TTTGGTAAAG	CTTTTGAAG	AGTCATTGGT	TTGACACGTT	15060
TGGGTCTTTT	TTCATGAAGG	CGAAGTACCT	GATCTTCAAT	TTCTTGATT	CCACCAATAC	15120
CAGATGCAAC	GATAACACCA	AAACGATCCC	TATTAAGAGC	CTCTACATCA	AGATTGGCAT	15180
GATTTACAGC	CTCTGGGCT	GCATACAAGG	CATATAAAGA	ATAGTTATCA	AAACGGTTGG	15240
TATCTTTTTT	TACAAAGTAT	TTATCGAAGC	GAAATCTTG	GATTCTGCC	GCATTATGCA	15300
CATCAAAGTC	ACTATGATCA	AATTTTGTA	TGCCACCAAT	GCCGATTTTC	CCAGTTGCTA	15360
AACTATTCCA	AAATTCTTCT	GGTGTATTTT	CGATTGGAGA	TGTTACTCCA	TAACCTGTTA	15420
CCACTACTCG	ATTTAGTTTC	ATTCTTTTCA	CCTCTAGCTT	TCGCTACATA	CTTAAGCCAC	15480
CATCAATGGC	AACCACTTGT	CCAGTTAGAT	AATCTTGGCC	TGCTAAAAAT	ACTGTCAAAT	15540
CTGCAACCTG	CTCTGCCTGC	CCAAATTCTT	TCATCGGAAT	CTGAGCTAGT	GTAGCTTCCT	15600
TAATCTTATC	TGACAGGATA	GCGGTCATAT	CAGACTCAAT	CATTCTCGGA	GCAATCACAT	15660
TGACTCGTAT	ATTCCGACTA	GCGACCTCGC	GTGCCACAGA	CTTGGTAAAG	CCAATCAAGC	15720
CAGCCTTAGA	AGCAGCATAA	TTAGCTTGAC	CAATATTCCC	CATCAAACCA	ACAACACTAG	15780
ACATATTAAAT	GATAGCACCT	TCTCTGGCTT	TCATCATCGG	TTTCAAGACT	GATTGTGTCA	15840
TATTAAGGC	ACCAGTCAGA	TTGACCTTGA	GCACTTTTTT	AAAATCTGCT	TCTGTCTCTT	15900
TGAGCATAAG	AGTATCTTGG	GTAATCCCTG	CATTGTTGAC	CAAAACATCT	ACTGAACCCA	15960
GTTCTGCAAT	AGCTTGATCA	ATCATACGCT	TAGCGTCTGC	AAAATCTGAT	ACATCTCCTG	16020
AAATGGGAAC	CACCTTGATA	CCATAGTTTG	AAAATCAGC	GAGCAATTCT	TCTGAGATTG	16080
CCCCACGACT	GTTTAAGACA	ATGTTGGCTC	CTGCTTGAGC	AACTTGTGG	GCGATGGCAA	16140
GACCAATTCC	ACGACTCGAA	CCTGTAATAA	AGATATTTTT	ATGTTCTAGT	TTTATTTTTT	16200
TCCTTTCAAA	ACTTCTACTT	ATTTTAGTCT	ATTTTCTTAA	AAGTGCTACT	AACTCGCTT	16260
GATCTTCCAC	ATGAGCTAAG	TGAGCAGTTT	GATCAATTTT	TTTAACAAAA	CCTGACAAGA	16320
CTTCCCCCGG	TCCAATCTCG	ATAAAGTTGC	TTATGCCTGC	TTCTTGATG	ACCCCAATAC	16380
TTTCATAGAA	ACGAACGGGT	TCCTTGACCT	GACGCGTCAA	GAGCTGAGCA	ATGTCTCTTT	16440

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TTTGCAACAC AGCAGCTTCT GTATTGCCGA CTAGGGGACA AGTAAATCT GAAAACTTA	16500
CCTGAGCTAG AGTTTCAGCT AGTTTCTGGC TAGCAGGTTT AAGGAGAGCG GTGTGAAAGG	16560
GACCTGACAC CTTAAGAGGA ATCAAGCGTT TGGCACCTGC TTCTTGCAAA AGTTCAACCG	16620
CTCGATCAAC TGCAACCACT TCTCCAGCAA TGACGATTTG TGCAGGTGTG TTATAGTTGG	16680
CTGGAGTAAC CACTCCAAGT TCAGAAGCTT TTTGACAGGC TTCTTCAATG ACCTCTACTG	16740
GCGTATTGAG AACTGCTACC ATCTTGCCAG AGTCAGCAGG AGCCGCTTCT TCCATATAGG	16800
CTCCACGCTT AGCTACCAAG GCAACCGCAT CTTCAAAATC CAAGGCGCCA CTTGCCACCA	16860
AGGCAGAGTA TTCTCCAAGA GACAAACCAG CAACCATATC AGGCTGATAG CCTTTTCTT	16920
GCAATAAACG GTAGATAGCA ACCGAAGTCG CTAGAATGGC TGGTTGCGTA TAGCGGGTCT	16980
GATTGAGTTT GTCTTCTTCC GTATCGATGA GATAACGCAA ATCATAACCG AGCACCTGGC	17040
TCGCTCGATC AATCGTTTCT TTAACAATCG GATACTGATC ATAGAAATCC CGTCCCATCC	17100
CTAGATACTG GGCACCTTGA CCAGCAAATA AAAAGGCTGT TTTAGTCATT TCTTACAACT	17160
CCTGTCCAGC GAGAGGCTTC TTCTTGAATT TTCTTAGCGG CTCCGTAATA CAAATCTTTT	17220
AGGATTCTCT CAGCTGTTTC TTCTTTAGAA ACAAGCCCTG CGATTTGACC TGCCATAACA	17280
GAGCCACCAT CCACATCACC GTGAACAACT GCTTTGGCTA GAGCACCTGC TCCCATTGT	17340
TCAAAGATTT CTAATCAGG ATCTTCTTGC TTAAAGGCAT CTTTTTCAGC CAGTTCAAAA	17400
TCTCTAGTCA ACTGATTTTT AATAGCACGA ACAGCATGAC CAAAGTGCTG AGCTGAAATC	17460
GTAGTATCAA TATCCCTTGC TTTTAAAATT TTCTCCTTGT AGTTTGGATG GGCATTGAC	17520
TCTTTTGCAA CTACAAACCG TGTCCCCACC TGTACAGCCT CTGCACCTAG CATAAAGCCA	17580
GCCGCAGCAC CTTCAACATC CGCAATTCCT CCTGCAGCAA TAACAGGAAT AGATATAGCT	17640
GTGGCTACCT GTCGCACCAA GGTCAATGGT GTTAATTTAC CGATATGCCC CCCAGCTTCC	17700
ATTCCTTCTG CAATAACAGC GTCTGCACCG ATTTTTCCTA TCGGTTTAGC TAAAGCGACA	17760
CTAGGAACAA CAGGAATAAC GATTATCCCA GCTTCATGGA AACGTTCCAT ATACTTGCTT	17820
GGATTTCTTG CTCCTGTTGT GACAACCTTA ACACCTTCTT CAATAACGAG ATCCACGATG	17880
TCTTCCACAA AGGGAGATAA GAGCATGATG TTGACCCCAA AGGGTTTATC AGTCAATGAT	17940
TTGATTTTAT CAATATTGGC CTTGACAACT TCTTTCGGGG CATTTCCCCC ACCGATAATT	18000
CCTAATCCTC CAGCCTTGA AAGAGCCCTT GCCAAATCAC CATCAGCAAC CCAGGCCATC	18060
CCTCCTTGA AAATAGGATA ATCAATCTTC AATAATTCTG TAATACGCGT TTTCATAGTG	18120
CCTCCAACCT TCCTTGCTTA CGTAATAGTT CGATTTCACC ATAATTGAC AGTCAAACTA	18180
TTACCTAAAC AAGAGGGAGT GGGTTTCTCC CTACTCCTTC TACTAATATT CTGCTTATTT	18240

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TGCTTGCTCT TCAACGTAAG CAACCAAGTC ACCAACTGTT TTCAAGTCAT TTTCTGCTTC	18300
GATTTGGATA TCAAAAGCAT CTTCCGATTTC TGAGATTACT TGGAAACAAGT CCAATGAATC	18360
TGCGTCCAAA TCATCAAAAG TTGATTCAAG TGTACTTCTT GATGCGTCTT TTCCAAGTTC	18420
TTCAACGATA ATTTCTTGTA CTTTTTCAAA TACTGCCATG ATAGGACTCC TTTAAAATAA	18480
ATAGTTTTTT TATAACAATG TGTTCAACCAC ATGATTACCT AAATTGTAAG AATGAGCGTG	18540
CCCCAGGTCA AGCCTCCACC GAAGCCTGAT AGAAGAACAG TCTGGCTACC ATCTAAAGGG	18600
ATGAGACCTT GTTCTACACA CTCTGAAAGT AAAATCGGGA TACTGGCTGC ACTGGTATTG	18660
CCATATTCCA TCATATTGGC TGGAAAGTTG GCTCGGTCAA CACCAATTTT TCTAGCCATC	18720
TTATCCAAAA TACGGTCATT GGCTTGATGA AGTAGCAGAT AATCCAAGTC TGTCACCTCT	18780
ATAGGAGATT CATCAATAGT CTGCTTGATA GACTTGGCTA CATCTCGAAT GGCAAAATCA	18840
AAGACTGTGC GTCCATCCAT CTTCAAAAAC GAATCTGCAC TTTCTTGATC TGAAAAATGA	18900
GAATGTAAAC CTGAATGCCC ATAAGTTAAA CACTCGCTGC GACTTCCATC GCTATTGAGA	18960
CTCTCAGCTA AGAAATGCTC TTGCTCGCTA GCTTCTAACA AGACACCACC AGCACCATCT	19020
CCAAACAACA CAGCTGTTGA TCGATCCGAC CAATCGACTG CCTTAGAGAG GGTTCCTACTA	19080
CCAATCACC AAGCTTTTGG AAAGCGACCA GAAGCGATAA ACTTTTCAGC AGTTGAAAGA	19140
GCAAAATACAA ATCCACTGCA AGCCGCGGTT AAGTCAAAAG CAAAGGCTTT ATTAGCACCA	19200
ATATTAGCTT GAACACGAGC AGCTGTAGAG GGCATCATCG AATCTGGAGT AATGGTAGCT	19260
AGGATGATAA AATCCAGTTC TTCTCCTGTT ATTCCAGCTT TTGCCATCAG TTTCTTAGCA	19320
ACCTCTGTAG CCAAATCACT GGTAGATTCT GTTCTTGAAA TATGCCCTTG TCGTATTCCC	19380
GTTCGACTTG AAATCCACTC ATCATTGGTA TCCATAATCT GAGCCAAGTC GTGATTTGTA	19440
ACCACTTGCT CTGGCACATA ATGAGCAACC TGACTTATTT TTGCAAAAGC CATTATTTCA	19500
AATCCTCCAA AAATTGGTAA AGATTAGTCA AACCTTTACC CATGACAGCA ATTTCTTCCT	19560
CGCTCATGCC ATCAATAATT TTTTCTACCA TGGCCTTGTC GAAGCGTTTA TGCAGTCTAT	19620
GAATCAAGCG ACCCTTCTTT GTCAAATGCA GATGCACCAC ACGACGATCC TGTCTTGACC	19680
GAACTCGCTC AATGTAGCCC GG	19702

(2) INFORMATION FOR SEQ ID NO: 8:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 5211 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:

GAAAAATTCC TCTCTTCTCT TGAAAAATTT TGA AAAAATG GTATGATAGT AACAACTTAT	60
TTTTAAGAGG AAAGAAAGGG GAATAATGGA GAAAATCAGT TTAGAATCTC CTAAGACGGG	120
GTCGGACCTA GTTTTGGAAG CACTTCGTGA TTTAGGAGTT GATACCATCT TTGGTTATCC	180
TGGTGGTGCG GTTTTGCCCT TTTATGATGC GATATATAAT TTAAAGGCA TTCGCCACAT	240
TCTAGGGCGC CATGAGCAAG GTTGTTCGCA TGAAGCTGAA GGTATGCCA AATCAACTGG	300
AAAGTTGGGT GTTGCCGTCG TCACTAGTGG ACCAGGAGCA ACAAATGCCA TTACAGGGAT	360
TGCGGATGCC ATGAGCGATA GCGTCCCTCT TTTGGTCTTT ACAGGTCAGG TGGCCGAGC	420
AGGGATTGGG AAGGATGCCT TTCAGGAGGC AGACATCGTG GGAATTACCA TGCCAATCAC	480
TAAGTACAAT TACCAAGTTC GTGAGACAGC TGATATTCCG CGTATCATT ACGGAAGCTGT	540
CCATATCGCA ACTACAGGCC GTCCAGGGCC AGTTGTAATT GACCTACCAA AAGACATATC	600
TGCTTTAGAA ACAGACTTCA TTTATTCACC AGAAGTGAAT TTACCAAGTT ATCAGCCGAC	660
TCTTGAGCCG AATGATATGC AAATCAAGAA AATCTGAAG CAATTGTCCA AGGCTAAAAA	720
GCCAGTCTTG TTAGCTGGTG GTGGAATTAG TTATGCTGAG GCTGCTACGG AACTAAATGA	780
ATTTGCAGAA CGCTATCAAA TTCCAGTGGT AACCAGTCTT TTGGGACAAG GAACGATTGC	840
AACGAGTCAC CCACTCTTTC TTGGAATGGG AGGCATGCAC GGGTCATTCT CAGCAAATAT	900
TGCTATGACG GAAGCGGACT TTATGATTAG TATTGGTTCT CGTTTCGATG ACCGTTTGAC	960
GGGGAATCCT AAGACTTTCG CTAAGAATGC TAAGGTTGCC CACATTGATA TTGACCCAGC	1020
TGAGATTGGC AAGATTATCA GTGCAGACAT TCCTGTAGTT GGAGATGCTA AGAAGGCCTT	1080
GCAAATGTTG CTAGCAGAAC CAACAGTTCA CAACAACACT GAAAAGTGGG TTGAGAAAAGT	1140
CACTAAAGAC AAGAATCGTG TTCGTTCTTA TGATAAGAAA GAGCGTGTGG TTCAACCGCA	1200
AGCAGTTATT GAACGAATTG GTGAATTGAC GAATGGAGAT GCCATTGTGG TAACAGACCT	1260
TGGTCAACAC CAAATGTGGA CAGCTCAGTA TTATCCCTAC CAAAATGAAC GTCAGTTAGT	1320
GACTTCAGGT GGTTCGGGAA CAATGGGCTT TGGAAATCCA GCAGCAATCG GTGCTAAAAT	1380
TGCTAACCCA GATAAGGAAG TAGTCTTGTT TGTTCGGGAT GGTGGTTTCC AAATGACCAA	1440
CCAGGAGTTG CTTATTTTGA ATATTTACAA GGTGCCAATC AAGGTGGTTA TGCTGAACAA	1500
TCATTCACTT GGAATGGTTC GCCAGTGGCA GGAATCCTTC TATGAAGGCA GAACATCAGA	1560
GTCGGTCTTT GATACCCCTC CTGATTTCCA ATTGATGGCG CAGGCTTATG GTATTAAAAA	1620
CTATAAGTTT GACAATCCTG AGACCTTGGC TCAAGACCTT GAAGTCATCA CTGAGGATGT	1680

TCCTATGCTA ATTGAGGTAG ATATTTCTCG TAAGGAACAG GTGTTACCAA TGGTACCGGC	1740
TGGTAAGAGT AATCATGAGA TGTGTTTTGT GCAGTTCCAT GCGTAGAATG TTAACAGCAA	1800
AACTACAAAA TCGTTCAGGA GTCCTCAATC GCTTTACAGG TGTCTATCT CGTCGTCAGG	1860
TTAATATTGA AAGCATCTCT GTTGGAGCAA CAGAAGATCC GAATGTATCG CGTATCACTA	1920
TTATTATTGA TGTGCTTCT CATGATGAAG TGGAGCAAAT CATCAAACAG CTCAATCGTC	1980
AGATTGATGT GATTGCGATT CGAGATATTA CAGACAAGCC TCATTTGGAG CGCGAGGTGA	2040
TTTTGGTTAA GATGTCAGCG CCAGCTGAGA AGAGAGCTGA GATTTTAGCG ATTATTCAAC	2100
CTTCCGTCG AACAGTAGTA GACGTAGCGC CAAGCTCGAT TACCATTGAG ATGACGGGAA	2160
ATGCAGAAAA GAGCGAAGCC CTATTGCGAG TCATTGCGCC ATACGGTATT CGCAATATTG	2220
CTCGAACGGG TGCAACTGGA TTTACCCGCG ATTAAAAATC CAACTTAAAT TTATTAAACC	2280
AGCCTAAAAG GCAATAAATA ATAGAAAAGA GAGAAAAGCT ATGACAGTTC AAATGGAATA	2340
TGAAAAAGAT GTTAAAGTAG CAGCACTTGA CGGTAAAAAA ATCGCCGTTA TCGGTTATGG	2400
TTCAACAAGG CATGCGCATG CTCAAAACCT GCGTGATTCA GGTGCTGACG TTATTATCGG	2460
TGTACGTCCA GGTAAATCTT TTGATAAAGC AAAAGAAGAT GGATTTGATA CTTACACAGT	2520
AGCAGAAGCT ACTAAGTTGG CTGATGTTAT CATGATCTTG GCGCCAGACG AAATTCAACA	2580
AGAATTGTAC GAAGCAGAAA TCGCTCCAAA CTTGGAAGCT GGAAACGCAG TTGGATTTGC	2640
CCATGGTTTC AACATCCACT TTGAATTTAT CAAAGTTTCT CCGGATGTAG ATGCTCTCAT	2700
GTCTGCTCCT AAAGGACCAG GACACTTGGT ACGTCGTACT TACGAAGAAG GATTTGGTGT	2760
TCCAGCTCTT TATGCAGTAT ACCAAGATGC AACAGGAAAT GCTAAAAACA TTGCTATGGA	2820
CTGGTGTAAG GGTGTTGGAG CGGCTCGTGT AGGTCTTCTT GAAACAACCT ACAAGAAGA	2880
AACTGAAGAA GATTTGTTTG GTGAACAAGC TGTACTTTGT GGTGGTTTGA CTGCCCTTAT	2940
CGAAGCAGGT TTCGAAGTCT TGACAGAAGC AGGTACGCT CCAGAATTGG CTTACTTTGA	3000
AGTTCTTCAC GAAATGAAAT TGATCGTTGA CTTGATCTAC GAAGGTGGAT TCAAGAAAAT	3060
GCGTCAATCT ATTTCAAACA CTGCTGAATA CGGTGACTAT GTATCAGGTC CACGTGTAAT	3120
CACTGAACAA GTTAAAGAAA ATATGAAGGC TGTCTTGGCA GACATCCAAA ATGGTAAATT	3180
TGCAAAATGAC TTTGTAAATG ACTATAAAGC TGGACGTCCA AAATTGACTG CTTACCGTGA	3240
ACAAGCAGCT AACCTTGAAG TTGAAAAAGT TGGTGCAGAA TTGCGTAAAG CAATGCCATT	3300
CGTTGGTAAA AACGACGATG ATGCATTCAA AATCTATAAC TAATTAGAAA TATATAGCCG	3360
TGGAGATGAT TTTATGAAAA AGATTATGAG AAAAATTGCA TCGTTATTAT TGGTTCTAGT	3420

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TGTATAATGT AATTACACCG TCGGTAATAG TGCTAGCAGA CCAAAATAAA GCAGATTGGT	3480
CGTATGATGA AAATGCTGTA ATTAACATT ATGATGATGC TAA <del>TT</del> TTGAA GATGGTAGGT	3540
TGCATATGAA CTTTGAACAA TTCTTCAAAT TGGCACAAAT AGCTAGAGAA GAAGGTCTTG	3600
AAATTCATT CCGTTTGAG AGAGCTGGTG CGACTAAATC TGCTCGTTAT ATAGCGAAAT	3660
GGATTTTGAG AAATAAAAAA CATTAACAAA TATAGTTGGT AAATCATTAG GACCTAAATC	3720
AGCTGTTAGA TTCGGAGAAG CTTTATCCTA TATTGAAGGT CCTCTTCGCA GAATAAATGA	3780
GACGATAGAT GGCGGTTTAT ATCAAATAGA GCAAATTATT GCATCTGGAT TGAAAGAATC	3840
GGGTTTAAAT GACTGGACTG CGAAAAC <del>TT</del> AGCTTCAGCT ATTCTGGGA TATTAGATGT	3900
ACTTATT <del>TT</del> AG GGGTTGAAAT CATATGAATA TTACCAAT <del>TT</del> GTTTTCTATC AAGACAGGAT	3960
GTGATGAAAC TGATAGGCAA CTGCAAAAAC TATTTTTTCA GTTGGATTTA CAATTGGGAG	4020
AATTGACAGA TCAACTAAGA AAATTAGATT CTAATTTTGT TCCTCGTAGT CAATTTGTAG	4080
ACACGTGGA TTTGAATGAT GTAGAATATA AAGAAATTTT AAATATTTT ATCTTCCATC	4140
GTAATGATAG TGAAGAAAGT TTGGTAGAAT GGTTATATGA TTGGATTTC ACAATCGTT	4200
ATGAACTTCC TAAAGACTTT TCGATTCTGA TGGCTCATAA ATACCATGAA AGTGTTACTG	4260
AAGTTTTCGG AGATGAATAA CTA <del>AAAA</del> ACA GTCATTAGTG ACTGTTTTT ATAGAAAAAG	4320
AGGTTTTATA TGTTAAGTTC AAAAGATATA ATCAAGGCTC ACAAGGTCTT GAACGGTGTG	4380
GTGTGAATA CTCCACTGGA TTACGATCAT TATTATCGG AGAAGTATGG TGCTAAGATT	4440
TATTTGAAAA AAGAAATGC CCAGCGTGT CGCTCCTTTA AAATTCGTGG TGCCTATTAT	4500
GCCATTTCCC AGCTCAGCAA GGAAGAACGT GAACGTGGGG TAGTCTGCCG TTCTGCGGGA	4560
AATCATGCGC AGGGAGTAGC CTATCTTGT AATGAAATGA AAATTCCTGC TACTATCTTT	4620
ATGCCCATTA CTACGCCACA ACAAAGATT GGTCAGGTT CTTTTTTGG TGGGGATTTT	4680
GTAACATTA AACTAGTTGG AGATACCTTT GATGCCCTCAG CCAAAGCAGC TCAAGAATTT	4740
ACAGTCTCTG AAAATCGTAC CTTTATTGAT CCTTTTGATG ATGCTCATGT TCAAGCAGGT	4800
CAAGGAACAG TTGCTTATGA GATTTTAGAA GAAGCTCGAA AAGAATCGAT TGATTTTGAT	4860
GCTGTCTTGG TTCCTGTTGG TGGTGGCGGT CTCATTGCCG GGGTTTCTAC CTATATCAAG	4920
GAAACAAGTC CAGAGATTGA GGTATCGGA GTAGAGGCGA ATGGAGCGCG TTCCATGAAA	4980
GCTGCC <del>TT</del> TG AGGCTGGAGG TCCAGTAAAA CTCAAGGAAA TTGATAAAT <del>T</del> TGCTGATGGG	5040
ATTGCTGTGC AAAAGGTAGG TCAGTTGACC TATGAAGCAA CTCGTCAACA TATTAA <del>AA</del> CT	5100
TTGGTAGGTG TCGATGAGGG ATTGATTCT GAAACCTTGA TTGACCTTTA CTCTAAGCAA	5160
GGGATAGTCG CAGAACCTGC TGGAGCGGCT AGTATCGCCT CTTTAGAGGT TTAGCTGAA	5220

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TATATTAAGG GGAAAACCAT TTGTTGTATC ATTTCTGGAC GAAATAATGA TATCAACCGT 5280  
 ATGCCAGAAA TGGAAGAGCG TGCCTTGATT TATGATGGTA TCAAACATTA CTTTGTGGTC 5340  
 AATTTCCAC AACGTCCAGG AGCTTTGCGT GAGTTTGTA ATGATATCCT GGGGCCAAAT 5400  
 GATGATATCA CACGTTTGA GTATATCAAA CGAGCTAGCA AGGGAACAGG CCCAGTATTA 5460  
 ATTGGGATCG CTTTAGCAGA TAAGCATGAT TATGCAGGTT TGATTCGTAG AATGGAAGGT 5520  
 TTTGATCCAG CTTATATTAA CTTAAATGCT AATGAAACGC TTTATAATAT GCTTGTCTGA 5580  
 GGACTAATAA AAAAATATCA TACCTTCATT TTGATTTCTT ATCTATTGAC AAGCATAGTC 5640  
 AACTGTCTT TAATACTCTT CGAAAATCTC TTCAAACCAC GTTAGCTCTA TCTGCAACCT 5700  
 CAAAACAGTG TTTGAGCAA CTTGCGGCTA GCTTCCTAGT TTGCTCTTTG ATTTTCATTG 5760  
 AGTATAAGGT ATGATTGAT TCTTTTGTG TGACAAATAT ACTATATTAA AAAGATATAT 5820  
 AAGTAATTAA CTGAGCTTAT CTGTCTTGTC ATCTCTATTA AGGATGGTTT AGATAATCGG 5880  
 GTGTCTGCTT CTAGGCTAGC ACCTCAATAT CCAAAGGAGT GATCAATTG AAGGACATAA 5940  
 GGAATACCTA TCTCTCAGAT GATTTATTGA GGAAGAAAGA TAGCAGTTTT TGAGCTAGTG 6000  
 AAGGCTTGGA TTTCTAAAGG TTAGAACTAT CATCTTCAGT TCTTAAATCG AAGAAATAAG 6060  
 CTATCTTACG GAAATAGAGA AGCATTTTTT AAGAACTGA ATAATTTCCG ACCTTAAGAG 6120  
 GGTAATAATA CAGTATTTT ATTAGCAAAT ATTTATGGTG TAGAGGCTAG CAAAACCTAT 6180  
 ATATTATCGG ATTTAAAAAG GAAGTAAGAA A 6211

(2) INFORMATION FOR SEQ ID NO: 9:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 7939 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:

CCGGACTCCC CACGATTCTT CAAAATAACT GAGTATATTT CTATCTTGAT TTTCAGATAT 60  
 AAATCTCTCC TTCTGTGGCC TCTTCTTACG CTTGAGAAGA GCTTCTCCGA CATGGCTTCT 120  
 TCCTTACTGA GCAAACCTT GAGCATAGAT AAGTTTGACT GGCAAGCGTG CTCTTGATA 180  
 TTTGGCTCCC TTCCCACTAT TGTGGATAGC GAGGCGTCTT CTCATATCAG TCGTATAGCC 240  
 TATATAGTAG GATCCATCAC GACACTCCAG AACGTACATA TAAGCCTTAT GATCCATAAT 300  
 AAATCTCTTC GATTTCGGGC GTATAAGAGC CATCATCATT GTGGACAATC AAAGGAGGTA 360



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AGACCTTAAA GCCACTTGTT GAGCCATCCT TGATCGCCTC AATCAAAAGC ATATTGGCTT	420
CCTTTTCTCT TTTTGGATAA ACAAAC TGCA GGCCTTAGG GGCTAGATTA TGTCGTTTTA	480
ACGTATCCAA AATATCCAGA AGTCGATCAG GACGATGAAC CATGGCCAAA CGCCCATTAG	540
ACTTGAGAAT ACTCTGGGCA CTACGACAGA TTTCTTCCAA ATTAGTCGTG ATTTCTGTGC	600
GAGCCAAGAG ATAATGTTCA CTCTCGTTCA GATTAGAATA AGGATTCACC TTGAAATAGG	660
GTGGATTACA CAAAATCATA TCCACCTTAC TCCCTGAAT GTGAGCAGGC ATATTTTCA	720
AATCATCGCA GATGACCTGC ATTTGCTCCT CTAATCCATT CAAACGGACA GAGCGTTCAG	780
CCATATCCGC CAAACGCTCC TGAATCTCAA CAGACAATAT CTGTGCTTGA GTACGAGTGC	840
TAGCAAAAAG CCCCCTGCT CCATTCCCAG CACAGAAATC CACAATCAAC CCCTTCTTAG	900
GAAAACGTGG AAATCGTGAT AAGAGAACAC TATCCACCGA ATAGCTAAAA ACCTCTCTAT	960
TTTGAATGAT TTTGATATCT GTCGAAAAGA GCTGGTTAAT GCGCTCTCCT GATTTTAATA	1020
ATTGTTCTTC TTCCATGGTC CTATTATAGC AAATTCATAT TAACATTACA AAAAAATAA	1080
AACTCTAAAC TACTTCTTCT TTTTAAATG GTGCAGGGCT TCTCCAGTCC AGATTGGTAG	1140
CATTCTCGA AAGGGAGCAA AGCCGTAGTT AAAGCGGTCG CTTGAAAAGC GTCTCCGTCT	1200
AGGAACTGG TACTTTTCTT CCTCCAAAGT GCGGATAGAA AGACTGGCTT TCCCTGTAAA	1260
TTCATCTAAA TCCACTACCT GAACCTGAAC CTCTTCATCG ACTTCAAGG TTTTATGAAT	1320
ATTTTCAATA AATCCTGTCC GAATCTCTGA AATGTGAATC AGCCCCGTAT CACCCGTCTC	1380
TAACCAACA AAGGCACCGT AGGGCTGAAT CCCTGTAATA CGCCCCCTTA GCTTATCACC	1440
GATTTTCATC TTAGTCCTCG ATTTCAATAG TTTCAATTAC AACATCTTCA ACTGGCTTGT	1500
CCATAGCTCC TGTCTCAACA GCAGCAATGG CATCCAAGAC AGCGTAAGAT GCTTCATCAG	1560
CTAACTGACC AAAAACCCTG TGACGGCGGT CTAGGTGAGG TGTCCACCT TGATTGGCAT	1620
AGATTTCTGC AATCGGTCTT GGCCAACCAC CACGAGTAAT TTCTTTCTTA GAATAAGGTA	1680
GGTGTGGTT TTGCACGATA AAGAACTGGC TGCCGTGGT ATTTGGACCA GCATTGGCA	1740
TGGAAAGAGC ACCACGGATA TTGTAAAGCT CTTCTGAGAA TTCATCCTCA AAAGATTCCG	1800
CGTAGATTGA CTCGCCACCC ATACCAGTTC CAGTTGGGTC TCCACCTTGG ATCATAAAGT	1860
CCTTGATAAT ACGGTGGAAA ATGACACCAT CATAGTAGCC ATCTTTTGAA AGAGATACAA	1920
AGTTAGCCAC TGTTTAGGA GCATGTTTCA GAAAAAGCTT GATACGTAAG TCTCCGTGAT	1980
TGGTCTTAAT AGTCGCAAGA GGACCTTCTA CTGTTTCAAT GTCTACTTGT GAAAAATGCA	2040
ATTCTTTTTC TACCATACCA AATACTTCTA AGGCAGCAAA AATGCCATCT TCTTCTAATG	2100
TTTTTGTAAT ATAATCTGCT TTTTCTTGA TTTTATCATG AGAAATTCCC ATGGCAACGC	2160

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TGATTCCAGC ATAATCAAAG AGTTCCAAGT CGTTGAGACC ATCTCCAAAA ACCATGACCT	2220
TCTCTGGTTT CAAGCCAAGG TGTTCACAA CCTTTCCAC CCCCGTCGCT TTGGAGCCTG	2280
AAATCGGCAC AATATCAGAC GAATGTTGAT GCCAACGAAC CATGCGAAGT TTGTCTGAGA	2340
GA CTGTCAGG CAAGTGCAAG TCATCTCCCT TATCTTCAAA AGTCCACATC TGATAGATAT	2400
CTTCTTTTTC ATGGAAATCG GGATCTACAT CTAAGTCGGG ATAAATTGGA TTGATAGCTT	2460
CACTCATCAT ATCGGTGCGA GTCGACAACT TGGCATCATG ACTCCCAACC AAGCCATACT	2520
CAATTCCTTC TTGCTTAGCC CAAGAGATAT ACTCCTCAAC ATCTGACTTT TCAATCTGAT	2580
GCTGATAAAT GACCTGACCT TTTTATCTT CGATATAAGC CCCATTCAAA GTTACAAAAA	2640
AGTCAGGCTT GAGATCACGA ATCTCTGGAA CAACACCAAA AATGCCACGT CCAGAGGCGA	2700
TTCCTGTAA AATTCCTTTT TCACGCAACT GTTTAAAAAC AGTGGGAATT GTAGTTGGAA	2760
TAAACCCTGT CTTTGAATTC CGCAATGTAT CATCAATATC AAAAAAGACA ATCTTGATCT	2820
TCTTTGCCTT GTATCTTAAT TTCGCGTCCA TCTCACTACC TCTTCAATC TAACTCTTTC	2880
CATTATATCA TAAAGTAGGC AAATCCCTA TTTTCAAAAA GTTTATCATT TTTATTTTAA	2940
TTTCTTGAT GAGAAAAGAG ACATATTTAT GAAAAAGCTC CATCGTGCTT TTAATGTGTT	3000
CTCTTGTTTT CAAACTCGTA AAAAGGGAGC CACTGATCCT AACTCGCTCT CTCATTTCAA	3060
AGCTTGTAAG AAAAGACCCG TTGGGGTCTT AATTCGCTTT CTGTGTTTCA AGTCATGAA	3120
AAAGAGACCC AACTGGGTCT TTTCTTTAAT CTTCGTTTAC GAAAGGCATC AAAGCCATTA	3180
CGCGAGCGCG TTGATAGCT GTTGTTACTT TACGTTGGTT TTAGCTGAA GTTCTGTGA	3240
CACGACGAGG AAGGATTTTC CCACGTTCTG AAACGAAACG GCTAAGAAGC TCAGTATCTT	3300
TGTAATCAAC ATATTCAATT TTGTTTGCTG CGATGTAATC AACTTTTTTA CGGCGTTTGA	3360
ATCCGCCACG ACGTTGTTGA GCCATGTTTT TTCTCCTTTA TAAGTTTAGT TGTCCATTAG	3420
AATGGTAAAT CATCATCTGA AATATCCAAT GGGTTTGTTG CTCCAAATGG ATTTTCATTA	3480
CGTGAAAAGT CTGGTACTGA ATTTGTAGGT GCTGAATAGT TTGCAGTTGG TGCAGAGTAA	3540
GCTCCACCTG TGTGACCCTC ACGCACACTA CGGCTTTCCA ACATTTGGAA ATTCTCAGCC	3600
ACGACCTCTG TCACGTAGAC ACGTTGCTCT TGCTGGTTAT CGTAACTACG AGTCTGGATA	3660
CGACCTGTCA CCCCATAAG TGAGCCTTTT TTAGCCCACT TAGCAAGATT TTCAGCCTGT	3720
TGGCGCCACA TAACGACATT GATAAAATCA GCCTCACGTT CACCATTTTG ACTCTTAAAT	3780
GTACCGTTTA CTGCAAGAGT AAAAGTCGCA ACTGCTACAT TTGATGGGGT ATAACGCAAC	3840
TCAGCGTCAC GTGTCATACG CCCTACAAGT ACAACATTGT TAATCATAGT TTACCTTCTT	3900

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ACGCGTCAAT	TTTGACGATC	ATGTGACGAA	GAATGTCAGC	GTTGATTTTT	GAAAGACGGT	3960
CAAACTCTTT	AAGAGCTGCA	TCGTCAATTTG	CTTCAACGTT	AACGATGTGG	TAAAGTCCTT	4020
CACGGAAATC	TTGGATTTCG	TATGCAAGAC	GACGTTTTTC	CCAAGTTTTT	GATTCAACAA	4080
CAGTTGCACC	GTTGTCAGTC	AAAATAGAGT	CAAAACGTGC	TACCAAAGCG	TTTTTAGCTT	4140
CTTCTTCAAT	GTTTGGACGA	ATGATATAAA	GAATTTTCGT	TTTAGCCATT	GATATGTTCC	4200
TCCTTTTGGT	CTAATGACCC	CAAGACTTTG	CAAGGGGTAA	GTGAGGTTCC	CTCACAATAA	4260
ACTATTATAC	TAGAAAAAAT	TTTTTTACGC	AAGTAAAAAC	ACTAGAATTC	GAAAAAACGC	4320
CACATGGGCG	TTTTCTGTT	CTTATGGTTT	GATACGGTGC	AACATACGTG	GGAATGGAAT	4380
AGCTTCACGG	ATATGTTTTG	TTCCTGCTGC	GAAGGTTACC	ATACGTTTCA	TACCGATACC	4440
AAATCCTCCG	TGTGGAAGTG	TACCGTATTT	ACGAAGGTCA	AGGTAGAATT	CATATTCTGT	4500
ACGATCCATG	CCAAGTTCAT	CCATCTTAGC	GACAAGGGCA	TCGTAATCTT	CCTCACGCAT	4560
AGACCCACCG	ATAATTCTCT	CATAGCCTTC	TGGAGCAAGC	AAGTCTGCAC	AAAGCACGCG	4620
CTCTGGATTT	CCAGGAAGTG	GTTTCATGTA	GAAGGCCCTG	ATGGCTGCTG	GATAGTTCAT	4680
GACAAATGTT	GGCACACCAA	AGTGGTTTGA	AATCCAAGTT	TCGTGTGGTG	ACCCAAAGTC	4740
ATCACCATGC	TCAAGATGCT	CGTAGTCAGC	ATCTTCATCA	TTTTTCATGCT	CTTGCAAGAG	4800
GTCAATGGCT	TGATCGTAAG	TGATACGTTT	GAATGGCTCT	GCAATGTAGC	GTTTCAAGAG	4860
TTCTGTATCA	CGTTCCAAGG	TTTCCAAGGC	TTGAGGCGCG	CGGTCAAGAA	CACCTTGTAG	4920
AAGAGCTTTC	ACATAAGCTT	CTTGCAAGTC	AAGCGACTCA	TCATGTGTCA	AGTATGAGTA	4980
CTCAGCATCC	ATCATCCAGA	ACTCAGTCAA	GTGACGGCGT	GTTTTTGATT	TTTCAGCAGC	5040
GAAAACTGGA	CCAAAGTCAA	AGACACGACC	AAGAGCCATA	GCCCCTGCTT	CTAGGTAAG	5100
CTGACCTGAT	TGGCTCAAGT	AGGCTGGCGT	TCCGAAGTAG	TCAGTTTCAA	AGAGTTCTGT	5160
AGAATCTTCT	GCCGCATTTT	CTGAAAGAAT	TGGGCTGTCA	AACTTCATAA	AACCGTTCTT	5220
GTCAAAGAAC	TCATAAGTTG	CATAGATAAT	AGCGTTACGG	ATTTGCAACA	CAGCTACTTG	5280
CTTACGAGAG	CGTAGCCACA	AGTGACGGTT	ATCCATCAAA	AAGTCTGTTT	CGTGTTCTTT	5340
TGGTGTGATT	GGGTAGTCTT	GAGATTCACC	GATCACTTCG	ATGTCTGTGA	TGTCCAACCTC	5400
ATAGCCAAAT	TTAGAACGTT	CGTCTCTTTT	GACAATACCT	GTACATAAAA	CAGACGTTTTT	5460
TTGGCTCAAG	CGTTTGATAA	CATCAAACCT	CTCAAGTCCC	ACTTCTTCAC	CAAATTTTTT	5520
GACAAAGTTT	GGTTTAAAAG	CCACACCTTG	AAAGAAGGCT	GTTCCATCAC	GCAATTGTAA	5580
GAAAGCGATT	TTTCCTTTTC	CTGATTTGTT	GGCAACCCAA	GCGCCAATCG	TCACTTCCTG	5640
ACCAACATAG	TCTTTTACGT	CAATAATCGT	TACACGTTTT	GTCAATTATT	TTCCTTTTCT	5700

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TTTTTATTCT TTATGGCAAA CCACCTCTAT ATTGTTCCCA TCCAGGTCAA TCATAAAAGC	5760
AGCATAGTAA ATCGGATGCT CACTTCGATA ACCAGGAGCC CCATTGTCTC GCCCACCTGC	5820
CTCTAAGCCA GCCTCATAAC AAGCCTGAAC TTCTTCCTTA TTTTCTGCTA AAAAAGCAAA	5980
ATGAACAGGA TCTTGTGTTC CCTGAGTCAG CCAAAAATCA CCACCAGGAT GAGGGCTGTT	5940
CGGGGATAGA AACTAATTA GAGAACTAGT CTTAAAAGCC AATTATAGT CCAAAGGAGC	6000
GAGAAACTC CTATAAATC CTTATGAAAT TTGTAATCC TTTACCTTAA TCTCAAATG	6060
ATCAATCATT CTCACTACCC ATAAATGCTT TCAAGCGTTC GACTGCTTCT TTAAGCGTGT	6120
CTAGGTCTGT CGCATAGCTG AGGCGGACAT TTTCTGGTGC TCCAAATCCA GCTCCTGTTA	6180
CCAAGGCCAC TTCGGCTTCT TCTAAGATAA CAGTTGTAAA GTCTGTCACA TCCGTGTAGC	6240
CTTTCATCTC CATGGCCTTT TTGACATTTG GGAAGAGATA GAAGGCCCTT TCGGTTTGA	6300
CCACTTCAAA TCCTGGTACC TCTGCAAGGA GGGGATAGAT GGTATTAAGA CGTTCCTCAA	6360
AGGCCTGACG CATGCTTTCT ACAGTATCTT GCTCACCTGA TAGAGCCTCA ACTGCTGCAT	6420
ATTGGGCTAC TGCTGACGGA TTCGAAGTTG TTTGACCTGC AATCTTGGAC ATGGCAGCGA	6480
TAATGTCTGC TTCTCCAACG GCATAACCAA TCCGCCAACC AGTCATGGCA TAAGTTTATG	6540
ACACACCATT GATGACCACT GTTTGCTTGC GAATCGCTTC CGATAGGCTA GAAATCGGTG	6600
TGAACTCATG ACCATTATAA ACCAAGCGGC CATAGATATC GTCTGCTAGG ATGAGAATAT	6660
CATTTTCTAC AGCCCAGTTT CCAATTGCCA AGAGTTCCTC ACGGGTGTAA ATCATACCTG	6720
TGGGATTAGA TGGCGAATTC AGCACCAAAA CCTTGGTCTT GTCAGTGGCA GCTGCTTCTA	6780
ACTGCTCTAC GGTACCTTA AAGTGATTGT CTTCCTTAGC AGAAACAAAG ACGGGAACGC	6840
CTTCTGCCAT CTTGACCTGA TCTCCATAGC TAACCCAGTA TGGGGTTGGG ATGATGACTT	6900
CATCACCTGG ATTGACCACA GCCATAAAGA AGGTATAGAG AGAATATTTG GCTCCCGCAG	6960
CGACTGTCAC TTGATTTGAC GCTACAGAAT AGCCGTAAAA GCGCTCAAAG TAGCTATTGA	7020
CCGCCGCCTT AAGCTCTGGC AGACCTGAGG TTAAGTATA AAAAGAAGCA CGCCCATCTC	7080
GAATCGATGC AATGGCGGCA TCTTGATAT TTTTGGGAGT AGTGAAATCT GGCTCACCCA	7140
AGGTTAGAGA CAAAATATCT CTACCCTCAG CCTTCAGTGC TTTGGCACGG GCTCCAGCAG	7200
CCAAAGTCAC ACTTCTTCC ATTTCTAAAA CACGGTTGGA TAGTTTCATA GGCCCTCCTT	7260
GTGACCAAT GCTCCTGTTT CAAAATCTAC TAGATAAAAA TCAGATCCTG ACTTAACTTC	7320
CCAGATTGGC TTATCTTGAT AACGGCCAAA GGTATCTTG TCAATCTCGC CAGCTCCCTT	7380
TTCTTAGAA ACCGTTTCTG CTTTTTCTTG TGAAACACCC TGATTTAGCT GATAAACGTA	7440

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AATCTTATCG TCATCTTTAC CAATCAGGAC AGCAAGCGCT TCTTGCTGTT TGTTCAGACC	7500
AAGAACGCTG TAATAAGATT CCAAGCCATT GTATAAATCA ACCTGATCAG CCTGCTCTAA	7560
TCCTGCATAC TGCTGAGCTA ATTTTCTCC TTCACTTTTA GCTGTTTGAT AGGGTTTCAT	7620
GCTAAGAGAA ACCATATACA GAAAGGAACC ACTGATAACC ACAAACAAA TCCTCATCCC	7680
TAGACCATAC TGCCACAGTA GATTATTTTT TGCTTTGTTT TGTCTTTTTT TCACTCGTCT	7740
ATTTTACCAT CTATTAAGCT TTATTACAAG TGAATATAAG AATACTCTTC GAAAATCTCT	7800
TCAAACCACG TCAGCTTTAT CTGCAGACCT CAAAGCTGTG CTTTGAGCAA CCAATTCTAT	7860
TTCTCCCTTC AAACAAAACC GATTTTGAAA GTGAAACAGT TCTTACTTTT TCAGTCACAA	7920
ATGATTAGAG TTTGCCGGG	7939

(2) INFORMATION FOR SEQ ID NO: 10:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 9897 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:

CCGCTCTACC GTCAAATAAT TACCATTTTG TTTAATACCG AAATTTTTAT CTAAGAAAA	60
TTCAAGTTGGT CTGTTGGTAC GATCGTCGTA TACAGTACCA TTCTCAGGAA TAGTATAATT	120
GTAATCAGTA TCACCTTGTT TCCTTAATTT AAGGTAATAA TTACCATCAA TTTGTTTATA	180
ACCTGAATCT TTTCTAGTTG CTCTCTAAA ACTTACTCCA GCAGGCATCA CATCAGCAAA	240
CATGAGTACT TGTTTGTTCT TTTTTCAAC AATAACAGAG TCAATATAGG TTGCACCACC	300
GCTGATTTGT AAGTCACGTC CACCAACTTC ACGAGGCCAT TCTAATGGTA CTGGCGCAAA	360
ATCATCGAAT GCCAATGTTA ATTTTGTTTT AGTCCATGTC TTACCATTAT CATCACTATA	420
ACTTGTAGCA ATATTAATTT TATTCAAGAA ATCATGAGTT CCACCGTAAC GAGCGTCAAT	480
GCTTGAAAAT ACCCGACCAT TGCTAAAAGT ATACAGAAGT GGAATACGGA AATAGTTAGA	540
ACCTGTTGTA TCATTAGCCG TATAAATTA ATGTCCAGTA ACAGCGTTTG TTGTCATCTT	600
TTTAACAGTT TCTTCATCCA ATGCACTATT AAAGAATTTG ATATTTTCTA GTGTTCCGTT	660
AAAACCAAAC GCCGTTTTTC CTGCACGTTT CACTCCCCCA AGCATATAGT AATCAATACC	720
TTTAATATCC TTGATGTTTA GGAAATTATC CACTTTCTTT TCTACTACTT TTGTACCATT	780
TGCGTATAAA GAATATGTTT TTTTGACTGA ATCTGCTACT ACTGCAACAG TGTTAGTCAC	840
AGCCTCTTGT TTGTACTTAC CCCAACTGA AGCAGGCTCT GATACTAGGT TATTTTTATT	900

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GGAAGAAGTA TCACGCGCTT CCATCCCCAA CTCACCATTG TCTCTAAGGA ACACATCTAC	960
ATAACTATTT TGTGACCGG GTTTGGAATT AGATAATCCA AACAGAGCTT GTAAGCCTTT	1020
CTCACTTGAC TGATTGTACT TAATCACTAC AGTAAAGTCA CCGCTAGTAA ATTTATCCTT	1080
TAACTCTTTA GTAACATTTT CTCCGCCCCC TGTAAAGTA ACATTATTTT TTTCTAAGAC	1140
AGGAGTTTCT TCCGCTGTAG AAGATGGATC CTTAACAGTA GTTTCAACTG TTCGAGGTTG	1200
TACAGTAACT TCCGAAGAGT TATCCGATGT AGGTTGTACT TCCGAAATCG GAGTCGTTGG	1260
TGCAACAGGT TGCACCAACT TTGGTGTGCA TACTTCAGAA GTTTCAGTCT CCTGAGCTGC	1320
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AATATTTTTT TTCATTTTAT TTTTCCTCGT TTAACACTTT GATAACAAGT TTTTAAACAG	1440
TTTCATCATT GCAATGAATC TTTGGTTGGT GAAGATCTTC TTCAAAAGTC ACCAACATAT	1500
TCCCTGGAAG CAATTCAACA ATTTGATAGT CTTTGCTATC GTAAAAAGCA ATATCCTTCT	1560
CTTCGCTAAA AGGTACACGT GACTGGGCAC GAACTGGGGA AGTTACTGCC ATTTTTCAG	1620
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GAACTCCATC AGCTAGATAA GTCATACAAT TTGCAAAAAC ATTTTCCCCG TCAATATCAA	1740
TTTTTCCATC AACTAAATCT GTCAAATTTG TATTTTCTAA AAAATCACAG ACTTTTGAAA	1800
AATATTTATT GACAGAAGCA TATCGTTTAA AATCAGATTG TTCAGAAATA ATCATATTAT	1860
TTTCTCTTTT CTATTAGTGA CGAACTTCCC AACTTGAATC CGCTTTAATT TCTGTAATAT	1920
CATGAATCGT TGTATATTTA GGTGCAGATA CTTTATTTCC AGTAAGAACA GATACAATAT	1980
AACCTGAAAC TACTGATACA GAGATTGAAA TCAATGAATA TGCCCAGTAG CTAACAGCTG	2040
TTGGAGGAAG GAAGTATTTA ATAAATACCA TGACGATGGT TGATACAATC AGCGCTGCAT	2100
AAGCACCTTG TTTATTTGCT TTTTLAGAAA CAAATCCAAG AATAAATACA CCACCAAGTA	2160
GACCAAGTAC AAGTCCCATG AACTATTGA ACCATTGCTA TGCAGATTTA ATATCTGAGT	2220
GAGCCATGAC AATGGAAACA CCAATTGAGA ATAAACCTAC TGCTAGAGAT ACGAATTGTG	2280
CAATTTTCGT ACGACGATTG TCTGACATAT TTTTAGAAAT GACATCTTGA ATATCCAATG	2340
TCCATGAAGT TGCAACAGAG TTCAAACCTG TTGAAATAGT TGATTGAGAT GCTGCATAAA	2400
TCGCTGCCAA GATCAAACCT GTGATACCTA CTGGTAACTG GTATGCAATA AAGTACATAA	2460
AGATTTGGTC TTGAGGGATA TTGCTAGCTG CACTATCTGC ATTTTGTACT TGATAGAATA	2520
CGTACAAGCC TGTACCAATC AAGTAAAAGA CTGTTGCAGT TGCAAGTGAC AAAACACCGT	2580
TTGTGAACAA CATCTTATTA AGTTTCTTAA TATTTTGTGT TGTAGTAAAA CGTTGAACCA	2640

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CGTTTGCTAA	TGTTTCTGCT	ACTGCACCAA	AGCCACCTTT	AATATTAGCA	ATCAGTACAA	2820
ATAAAGCTAA	AACGACACCA	CTAATCAGAA	TCACACCTTG	AATAAAGTCT	GTCCATAATA	2880
CGGATTTTAG	ACCACCAGTA	TAAGAATAAA	CAATTGCAAC	TACACCCATC	AAAATAATCA	2940
AAATATTGAT	GTCAATTCCT	GTCAATACTG	ATAAACCAGC	TGATGGGAGG	TACATAATGA	3000
TAGACATACG	TCCCAATTGA	TAAATAATAA	ACAAGAGTGC	TGAAATAATA	CGAAGTGCTT	3060
TAGAATTAAA	ACGTTTATCC	AAGTAATCAT	ATGCCGTATC	GATGTCTATC	CGTGCAAAGA	3120
TAGGTAAGAT	AAAACGAATT	GTCAGTGGAA	TAGCTACTAC	CATCCCTAAT	TGAGCAAACC	3180
ATAAAATCCA	GCTACCTGCA	TAAGAGCTAC	CAGCGAGTCC	CAAGAAGGAA	ATCGGACTGA	3240
GCATTGTGGC	AAAAATGGAT	ACCGAAGTAA	CATACCAAGG	AACCGAACCA	TCTCCTTTAA	3300
AGAACTCTTT	TCCTTTTCATC	TCTTTTTTAG	AGAAATAGAT	ACCTGCAACC	AACACCGCAA	3360
GTAAATAAAC	AATCAAGATA	ATTAAGTCAA	TTATTGTAAA	TCCTGTTGTG	CCCATAACAT	3420
ATCTCCATAT	TGATTTTATT	TATTATAAAA	ATTCTTTTCG	TGCTTGTGTA	ATAAGTTCTG	3480
CTGCTTGTTT	TGCAACTTCC	AAGTCACCTT	CTGCCAATGC	TTCTAAAGGT	TGACGAACAG	3540
AACCTAAATC	AAGTTTTTCA	TTTAGACGCA	AAACTTCTTT	TGCTACAGCA	TACATATTTG	3600
CCTTACCTGA	TATCATCTTA	TAGATAACTT	CATTGATAGC	ATATTGAAGT	TTTTTAGCTG	3660
TATCTAAATC	TCGTTCTTGA	ATCAAACTTT	CCAATTTCAA	GAACAAATCT	GGCATAACGC	3720
CATAAGTACC	ACCAATACCA	GCTTCTGCTC	CCATCAAGCG	ACCACCAAGA	TATTGTTTCAT	3780
CTGGACCATT	GAATACAATG	TAATCTTCTC	CACCTGCAGC	TACAAACATT	TGAATATCTT	3840
GTACAGGCAT	AGAAGAATTT	TTAACTCCAA	TCACACGAGG	ATTTTGACGC	ATTGTTGCAT	3900
ACAAACTACC	AGTCAACGCA	ACCCCTGCCA	ATTGTGGAAT	ATTATAGATA	ATAAAATCTG	3960
TATTTGACGC	AGCTTCACTC	ATTGCATTCC	AATATGCTGC	GATTGAATAC	TCTGGCAATT	4020
TGAAATAAAT	AGGTGGGATA	GCTGCAATAG	CATCGACTCC	AACACTTTCT	GAATGTTTTG	4080
CCAATTCGAT	ACTATCTTTC	GTGTTATTAC	ATGCAATATG	GTTGATAACT	GTTAATTTAC	4140
CTTTAGCAAC	TTCCATAACA	GCTTCAATAA	TTTGTTCACG	ATCTTCTACA	CTTTGGTAAA	4200
TACATTCACC	TGAAGAACCA	TTTACATAGA	TACCTTTTAC	ACCTTTGTCA	ATGAAATATT	4260
GTACCAGAGA	TTTTACACGA	TCTTGGCTAA	TTTCACCATT	TTTCATCATG	CAAGCATAAA	4320
ATGCAGGGAT	AACGCCTTTG	TATTTAGTTA	AATCTTTCAT	CAGATTTCTC	CTTTATATTG	4380
TTTTTTATTT	GATGACATTA	ATAAATCGCT	GAGCAATTC	TTTTGGACGT	GTAATCGCTC	4440

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ATCAACGCCT GATTTAAATG CATAGAGACC TTCATCTAAA TTAATTACAT CCGCCATCAG	4680
CAATTGATTC GGATATTTTT CTTTTATTTT TTTGATAAAT TCACTGACAA CTAAGCCATC	4740
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AATTCCAATT ATTGGTAAAT CTAATACTTT CTGAATTGCT TTAATATCAC GCACAGAATT	4920
TGCGCGAATG CCCACTGCTC CTGCCTCTAA AGCTGCTTTA GCCATAAAAG GCATCAAGCT	4980
AAATTCTTCA TTATAAAGGG CTTCAACCAGG TAAAGCTTGA CAAGAAACAA TGAATCCACC	5040
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TATGGATAAT AGTTTGATTG TAATAATATT GTCTCTCTGG ACTTTCAGTA TAATTAGAGA	5160
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GATGATCGGT CGAAGCTAAT AACAATAGTT CATCAAAGAA ACAATCTTCT TCGTCAAATT	5280
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GTACAATATC AGTTTGACCT GAAATGGATG CTCCAATGAC AAGGCAATTT TCATTAAGTA	5400
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GCATAAATCT CATCTTCATT TCTTGTAAG CAAGAACAGA ACTTCCTTTA CCGTAGAGAT	5520
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TAAACCTTT AAAACCACAT TTTTTCGCA ATCCAGTCAA TGTTGCTTTG GATACATTAA	5760
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TAGCAATGTC TTTTTCAGCA TATGCCATAT TTGGTAAGTT AGCTTCTATC ATTGGAATTA	5880
GTCTTTTTTG CAGTAACATA TGAGCTCCTT AGTTGAAGTA AACGTTTACA TTCTTTATTT	5940
TAACACTTTT TTTTTTTTTC AATATTTTTC ATAAATTAGA AACTAGTTTC CAATTTCTTT	6000
CGTTTCATAA CAGAACAACA AACATAAAAA TATAATAGTT TTTATCTTTT TTATCGTAAT	6060
TATATGTATT GTAAGAACGT TTATCACTAA TAATATGTTT ATATTAAAA ATTTTAGTAA	6120
TATTTTATTT TGGTTTTATT ATTTCTTTTC GGAATTTCTA TATAATATTT TATTTCTAAA	6180



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AAAATTGAAA AAATATTTCT AGTTTCTTTA TTTTATATAG GTAAATATATT TTATTTCTAA	5240
ATTAAGAG AATCCCATAA AAACACAGA TTTATGAGAT AAATCAGGTC ACCTATTTTA	6300
AAAAAGCAGC AAACATATAA CTAAGAGTT CCACACCAA TGTAACCCCA TACTTCCCA	6360
TAAATCAGAT TTATAGCGCA CCATACCTAA AAACATTCCA AGTGAAACGT ACAGACACCA	6420
AGCTAGAATG GTTCCTGGAT GATGTACTAA GGCAATATA ACACTTGTC AAGCAACTCG	6480
AATATCTAAT TTTCTAACCA AGTTCCATAA AATTTCACGA TACAGAAATT CTTCAACCAT	6540
ACTCGCATTG ATTAAGAACA ATAAAAATGA AAACCAAGGA ACTTGATGTT GAAGGCCAAT	6600
TAAATTTGTT TGATTCGTGC TTCCTTGAGC ATGAATCAGG CTAAACATA GACTTATAAT	6660
CAGTAGACTA GCTAGTCCAA TACCAAGGCA TTTCATCCTA GTTTTCATAT TGACCTTGAC	6720
CACTTGTTTT CGTTGACCAT ACATCCATAA AAAAGAAAA AGAGACGCAC CATAGAGAAC	6780
CTGTAGTATA GTTAACTCAC CGATACAAAG AAATTTCAAT AAGTATAGAG ATACCAATAG	6840
GACATTTACT TGTTGGAATA TATAAAGTGG AATTATTCTT TTCATAGTTA CCTCCGAAAT	6900
AAATCTTCAT AATCTAAATC TAATATCTGC ACAATCCTTT CTACCCATGG ACTTTGAGGC	6960
ATTCGTTGTT CCATCTTGTA GTGGCGAATC TTTTGATATA AACGATTCAA TTCACTTGGA	7020
TAGTGAAACT CTCCCGCAA CATTTTCTG GTTAACTCAA TCCAGCTGAT ATTTCTTTCA	7080
GCCAAATAA TGGACAAGTT CTCCCAAAAT CGTTCAGCCA TATTCTTCT CTTTAGTTA	7140
GATAAATAAT GTGTTGyGC CATGTAAATC AATTGTTTCG TATCTCTGG CAATAGAGCT	7200
CTAGCCTCTT CCAAAATCAG ACTTGATAA ACCCGCTTAT TTGAAACCAC AAAAGGAAGT	7260
CCGATGGTTA GTTCAGGATT TTTTAAATTT ATCTCAACGA AATCCGTAA TCTTAGATTG	7320
TCACGGTTCT TAAATCGTAA TAAATGGGA GATAAAACT CAAACAATC TGAAGAATAG	7380
CTCATCATCT CAATTAATTT GTCCTTGTC ATTTGAGAAA CTGAATGACA AGATACCTCA	7440
ATGCCATAGT TTTGGAAGAA GTCTAAAAGA AGTTGATTTT TTTGGCTATT TTTACTTAGA	7500
TAGAGATCAA TCATGGGAGA CCTCCAACAA ATTTGCTTCC ATTTGATATT CTGAGACGAT	7560
TAAGGAATCT AACAACTTTG AGAAGTTAAT CGATTCTTG TCTTCATCAT AAGCTTTTAC	7620
AGTTACTTGG GTTGTAAGTA TCCCTCTTT TCCCTCGGCT CGATAGTCTT GTCAATATAA	7680
AACAAAAACA AGATTCTGAT TATCATCTAC AAAGGCATTA ACTCGTTCT TTATATCCTG	7740
ACTTTCAAGG AATCCATAA CGTTTGAAG ATAGGATTCA TAAATAGTG GGTAATTATG	7800
TTTTTTATGG TAATCATCTA AAAATGTTAC CTCAAACCTA CATGGATAAT TGGGCATCAA	7860
AAATATTTGT TCATCCAGCT GTTTGATTTG TGCATCATGT AATTCTGTTT CTAATTCATC	7920
ACAATCTAGT ATTGATTCTT TATTTAATGC TTTTATCTTT TTCCTCTATT TCTTTAATT	7980

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TCTTTGCGAT TCGGCAATC ACAGGAACGG TTACACTATT ACCAACTTGT TTATAGAGCT	8040
GACTATTAAT AGAGACTTTT CTAGCAGCTT CAAAAGCCTA ATCAGGAAAG CCATGCAATC	8100
GAAAACACTC TTTAGGAGTG ATTGTCGTA TTCTCAAACG GTAAAATTGT CCATCTATTA	8160
AAACACCAGC TACTTGGTAA ACTTGTTTAT CTCTCCTTC ATAGCTAGCC ACTACTACTC	8220
CCATTTGACC ACTAGTTGTT AACGTATTAG CTATACCTTT TCCAACTCTA CCACGACGAT	8280
ACTGAGAACT TGGTCTTTCT AAATTGATTG AATCCCCAAT CTCTGCTTGA GCATATCCTT	8340
TTTTCGTTGC TTCCCGTACT TTTAGAAATT GGATTGGTTC TGGAAATTAGT ATTTTGGGGA	8400
TTTATCTCC TCCTTGCAAC GTAGTCAGTG TTGGAGATAA GCCCTCACTT CCATAGACAC	8460
GACCTGTCTC CTTAAAGCTA GTCGGTAAAT CTCCAACAAC GACAATGCCA TAACGATCCT	8520
GAGTATTTAA AGTAAACATC GGCTCTTGAT TTTCCTTAAA GCGTCTCCCA TTTTGTCTCT	8580
TGCTAATCT ATCTGGTGTC ATACAAGGAA TCGCAACTTT AAATCCTTCT CCTTTACCAC	8640
GAACTAAGGT TGGCGCAAGA CCTTCTGAAT AATAGACTTT ACCGCTCATT CCACCTCTTG	8700
ATGGATTCAA ATTTCTAGT GCTTTCAAAG TCTCAGAGTT AGTTGCTTGA CCTTCTCGTC	8760
TGAAAGGAAA TAAGAGTCTG GTACCTTTCT TTCTAGAATG TCCGATAATA AACACCTCT	8820
CTCTGTTTTT GGGAAACGCCA AAATCCTTAC TGTTAAGCAC CTGCCACTCA ACATCAAACC	8880
CCAACTCATC AAGTGTGGTA AGTATTGTGG TGAACGTCCG TCCCTTATCG TGATTGAGTA	8940
GGCCTTTAAC ATTTTCAAGA AAAAGAAAAC GTGGTTGGAT TTGTTTGGCC GCCCGAGCAA	9000
TTTCAAAGAA CAAAGTTCTT CTAGTATCTT CAAATCCCAA TCGTCTTCCT GCGATTGAAA	9060
ATGCTTGACA AGGGAATCCC CCACAGATGA CATCGACTTT CCCTCTAAGT TTTTAAATT	9120
CGTCATCTGA AACATCTCGT ATGTCATGAA ATTCTATTTT TCCTTCCGTT TGAAAAATGG	9180
ACTTATAAGA TTTCTAGCA AATTTATCAA TCTCACAAAA TCCCAAGCAC TCATGCCCTT	9240
GAGCTTCCAT TCCCATCCTA AAGCCTCCTA TCCCAGCAAA TAAATCTAAA ACCCAAATCA	9300
TTCATACCTC TCTCAACTAG ATGTAACCTA CAAAACCCCT GACCTCATGA GCCACTTTCT	9360
TCCTCCTCAT GAGGTCAGTT TTACTTTCTG CTGTTCCAGT ATCGTTTTTC CTCGCTAGAT	9420
TTCTCAAAA GGGCAGACTC CTCCCTTGGT TCGTCACAG ATTTTTTCAT CTCGACTGTT	9480
CTTTAATGCA TCATTAAACGA CGCTTTTCTT CTAGGTGGTT CATAAGGAAC AGGAAGATTC	9540
AGGTTGACTT TTCTAATCCT AGAATAAAGT GCTGAAAAACA ATTCGGAATA GGCATAGAGA	9600
CTAGACAATT TGAGGAGCTG CTTGCGTCCT GTTCGAACAC ATTTTCCTAC CACGTGAAGA	9660
AAAAGATGGC GGAAGCGTTT GATTGTAAAA GTTTGGAAGT CACCTCCAGC TAGATGTTTG	9720

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AGAAAAAGAT AGAGATTGTA GGCGATACAG CTCATCATCA TACGAACTCG TTTTGTGATTA 9780  
 AGGTTGAACT ATCCGTTTTA TCGCCAAAAA ATCCCTCCTT CATCTCCTTG ATGAAATTCT 9840  
 CGGCTTGACC ACGTCCACGA TAAAGCTGAA ACTGGTCTTG GCTTGTTCGG GTACCGA 9897

(2) INFORMATION FOR SEQ ID NO: 11:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 8148 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:

CCGTGGAACA AGCCAAGACC AGTTTCAGCT TTATCGTGGA CGTGGTCAAG CCGAGAATTT 60  
 CATCAAGGAG ATGAAGGAGG GATTTTTTGG CGATAAAACG GATAGTTCAA CCTTAATCAA 120  
 AAACGAAGTT CGTATGATGA TGAGCTGTAT CGCCTACAAT CTCTATCTTT TTCTCAAACA 180  
 TCTAGCTGGA GGTGACTTCC AAACCTTAAAC AATCAAACGC TTCCGCCATC TTTTCTTCA 240  
 CGTGGTAGGA AAATGTGTTT GAACAGGACG CAAGCAGCTC CTCAAATTGT CTAGTCTCTA 300  
 TGCCTATTCC GAATTGTTTT CAGCACTTTA TTCTAGGATT AGAAAAGTCA ACCTGAATCT 360  
 TCCTGTTTCT TATGAACCAC CTAGAAGAAA AGCGTCGTTA ATGATGCATT AAAGAACAGT 420  
 CGAGATGAAA AAATCGTGTG ACGAACCAAG GGAGGAGTCT GCCCTTTTGA GGAAATCTAG 480  
 CGAGGAAAAA CGATACTGGA ACAGCAGAAA GTAAACTGA CCTCATGAGG AGGAAGAAAAG 540  
 TGGCTCATGA GGTGAGGGT TTTGTAAGTT ACATCTAGTT GAGAGAGGTA TGAATGATTT 600  
 GGGTAAATAC AATGAGCTTG AAAGAAGTAG CAACTCACC AAGCGCCAAT TCTTTGAGAA 660  
 TCAGATGCTG GATTATACCA TCATTGCGCA TGAGAGTTTT GAAATCATCC GTCATTCTGT 720  
 CTACCAGACA GATGATCGTG AAGTGGAATA TGCTCTGGCT TTGGAAGTGA AAAATGATGA 780  
 AACAGACAAG CTGATTCTCT TATTAAGCGA GGATATTGGT GTAGGTGAAA AATTGTGCCT 840  
 CGTTGACGGA ACAAAAATGC GTGGAAAATG TTAGTATAT GATAAAATAA ATGAGAGAAT 900  
 GATTGCTTG CAGTGCTAGA AATAGGCATT TTGAATAGTG AATATGTTAT AATAAGTATT 960  
 AGTAGGAGGT GTTTTAGATT GGAGAAGAAA CTGACCATAA AAGACATTGC GGAAATGGCT 1020  
 CAGACCTCGA AAACAACCGT GTCATTTTAC CTAACGGGA AATATGAAAA AATGTCCCAA 1080  
 GAGACACGTG AAAAGATTGA AAAAGTTATT CATGAAACAA ATTACAAACC GAGCATTGTT 1140  
 GCGCGTAGCT TAAACTCCAA ACGAACAAAA TTAATCGGTG TTTTGATTGG TGATATTACC 1200  
 AACAGTTTCT CAAACCAAAT TGTTAAGGGA ATTGAGGATA TCGCCAGCCA GAATGGCTAC 1260

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CAGGTAATGA TAGGAAATAG TAATTACAGC CAAGAGAGTG AGGACCGGTA TATTGAAAGC	1320
ATGCTTCTCT TGGGAGTAGA CGGCTTTATT ATTGAGCCGA CCTCTAATTT CCGAAAATAT	1380
TCTCGTATCA TCGATGAGAA AAAGAAGAAA ATGGTCTTTT TTGATAGTCA GCTCTATGAA	1440
CACCGGACTA GCTGGGTAA AACCAATAAC TATGATGCCG TTTATGACAT GACCCAGTCC	1500
TGTATCGAAA AAGGTTATGA ACATTTTCTC TTGATTACAG CGGATACGAG TCGTTTGAGT	1560
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ACTCGGATTG AGCGGGCAAG TGGTTTTGTG GATGCTTTAA CAGATGCTAA TATGCGTCAC	1620
GCCAGTCTAA CCATTGAAGA TAAGCATACG AATTTGGAAC AAATTAAGGA ATTTTACAA	1680
AAAGAAATCG ATCCCGATGA AAAAATCTG GTATTTATCC CTAAGTTG GGCCTACCT	1740
CTAGTCTTTA CCGTTATCAA AGAGTTGAAT TATAACTTGC CACAAGTTGG GTTGATTGGT	1800
TTTGACAATA CGGAGTGGAC TTGCTTTCT TCTCCAAGTG TTTGACGCT GGTTCAGCCC	1860
TCCTTTGAGG AAGGACAACA GGTACAAAG ATTTTGATTG ACCAGATTGA AGGTCGCAAT	1920
CAAGAAGAAA GGCAACAAGT CTTGGATTGT AGTGTGAATT GGAAAGAGTC GACTTTCTAA	1980
AATGAAGGAA AATGACTTGC AATCTCTGTT AAGAAATAAA ATAATCCAC CTAGAACAAG	2040
CTAGTGCGGA TTATTTGCCT ATGAAATGAG AAATTATGGG AGCAAGCTCC TAAATCAACT	2100
GTTTTTGATC TACTTCTTTA ACTACTTGAT AAAAGTTATA GAAGTAGGCC AAACTTGAAA	2160
TGATGGTTAC GACTAGGAAT ATTGAAAATT TCCATTGGAC AGGGTTGGTT AAAAGTTGTG	2220
GAAAGGATAT GAGGAGAAAAG AAGAGGGCTG CGTTGAGGAC AGGTATCCGT TTTGATTGTA	2280
TTTTCTCAAG TCCTTTATTG AGCGCAGGAA GAAAGAGGAG TAGGAGTAGT AAACTGTAT	2340
GAGAAATAGC TCCTGAAGTA AGGCCGAAGA AAAGGAAAAT ACTGATAAAA ACATGAATGA	2400
TCAGTAGTCT AGCTAGTGAT TTCATAAGGC ACCTCCTAAT CCTGGTCTTT TTTAGCTCTT	2460
GCAATACGAA GTGAGTCGAC AATATGTATC ATCACTCCGA AAAAGAAAGC TCCCAGTATA	2520
GTTTTAAAAA TATGTTTTGT ATTTAGAAGA GAACTGATAA AATTTGGATT TTCATTGTT	2580
AGGGTATCAA TGAGTGGAAT TATAAAAAAT ATCACTGTTT CATAAATCGA ACCTGCTTTC	2640
AGACCAGGAT AACGTAAGT TTTCTTTTCT TTTTTCATGA GTTTCCTCCT AATCCTCATC	2700
TTGATTTTTT TTAGTTTTTG CAATGCGACG GGAGATGAGG AACTGTATGC TCGCTCCGAA	2760
GAAAATAGAA CCGAGAATAC TTGATACACC ATTTCTTATA GTGAGAAGAG AATGAAAATA	2820
GTCCTGACCT TCATCTATGA GTATCCTGAG AAGAGGAGTT ATAAAAACA TCCATAGACC	2880
AAAGAACAAA CCTGCTTTCA GACCTGGGTA GTGTAGTTGC TTGCTTTCTT TCTCATTCAG	2940
CATATCTGGT TCAATGACTG TGATGCCTGT TTTTTCATT TGGTAGGTGA CATAGCCAGA	3000

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AGCGATGAGG GCAATCACTA AAATCAGAGG AGGATAGATT AGAGCCACTT CTTGAGGGTA	3060
TTTATAGGCC AGAAGGAGTG GAATAAGATT TCCGAAAATC ATCAGATAAA AGAGGATGAT	3120
AAAGACTTGG TTCCCAATAC TATCGGCCTC ACGCCGTTTG TATTCGTCAA GGGGACCAGA	3180
AATACCGTAT GTGCGTTTGA TCAGTTTTTC AGTGAAGGTT TCTTTTTTCA TGAGTTTGCT	3240
CCTTTTTTAA AAATCTTCCT CCCAAAAGAG ACTGTTGAGG TCAGTTTGGA GGCTGCGGGC	3300
GAGATTGAGA CAGAGTTCCA AGGTTGGATT GTACTTGTCG TTTTCAATCA TATTGATAGT	3360
CTCTCTCGAG ACACCGATAT CCTTGGCGAG TCGAGCTGG GAAATACCCA ATTCCTTGGC	3420
AAATTCTTTC ACACGATTCA TCTGTTCTCC TTTCTGATTT ATGTCGTATA TATTTGACTA	3480
TATTATAGTC TTTTAAACAT AAAGTGTCAA GTATTTTTGA CATATTTTTT GAAGAAATAG	3540
TAGTCTCCTT GTCCTATTTG TCTGACAAGT GCAAGCTGGT CGGATTTGTG GTAAAAATAGA	3600
TAAGATATGA CAAAAGAATT TCATCATGTA ACGGTCTTAC TCCACGAAAC GATTGATATG	3660
CTTGACGTAA AGCCTGATGG TATCTACGTT GATGCGACTT TGGGCGGAGC AGGACATAGC	3720
GAGTATTTAT TAAGTAAATT AAGTGAAAAA GGCCATCTCT ATGCCTTTGA CCAGGATCAG	3780
AATGCCATTG ACAATGCGCA AAAACGCTTG GCACCTTACA TTGAGAAGGG AATGGTGACC	3840
TTTATCAAGG ACAACTTCCG TCATTTACAG GCATGTTTGC GCGAAGCTGG TGTTCAAGAA	3900
ATTGATGGAA TTTGTTATGA CTGGGAGTG TCTAGTCCTC AATTAGACCA GCGTGAGCGT	3960
GGTTTTTCTT ATAAAAAGGA TGCGCCACTG GACATGCGGA TGAATCAGGA TGCTAGCCTG	4020
ACAGCCTATG AAGTGGTGAA CAATTATGAC TATCATGACT TGGTTCGTAT TTTCTCAAG	4080
TATGGAGAGG ACAAAATCTC TAAACAGATT GCGCGTAAGA TTGAGCAAGC GCGTGAAGTG	4140
AAGCCGATTG AGACAACGAC TGAGTTAGCA GAGATTATCA AGTTGGTCAA ACCTGCCAAG	4200
GAACTCAAGA AGAAGGGGCA TCCTGCTAAG CAGATTTTCC AGGCTATTCT AATTGAAGTC	4260
AATGATGAAC TGGGAGCGGC AGATGAGTCC ATCCAGCAGG CTATGGATAT GTTGGCTCTG	4320
GATGGTAGAA TTTCAGTGAT TACCTTTCAT TCCTTAGAAG ACCGCTTGAC CAAGCAATG	4380
TTCAAGGAAG CTTCAACAGT TGAAGTTCCA AAAGGCTTGC CTTTCATCCC AGATGATCTC	4440
AAGCCCAAGA TGGAATTGGT GTCCCGTAAG CCAATCTTGC CAAGTGCGGA AGAGTTAGAA	4500
GCCAATAACC GCTCGCACTC AGCCAAGTTG CGCGTGGTCA GAAAAATTCA CAAGTAAGAG	4560
GGAAAAAGAT GGCAGAAAAA ATGGAAAAAA CAGGTCAAAT ACTACAGATG CAACTTAAAC	4620
GGTTTTTCGG TGTGGAAAAA GCTTTTTACT TTTCATTGC TGTAACCACT CTTATTGTAG	4680
CCATTAGTAT TATTTTTATG CAGACCAAGC TCTTGCAAGT GCAGAATGAT TTGACAAAAA	4740
TCAATGCGCA GATAGAGGAA AAGAAGACCG AATTGGACGA TGCCAAGCAA GAGGTCAATG	4800

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AAC TATTACG TGCAGAACGT TTGAAAGAAA TTGCCAATTC ACACGATTTG CAATTAAACA	4860
ATGAAAATAT TAGAATAGCG GAGTAAGATA TGAAGTGGAC AAAAGAGTA ATCCGTTATG	4920
CGACCAAAAA TCGGAAATCG CCGGCTGAAA ACAGACGCAG AGTTGCAAAA AGTCTGAGTT	4980
TATTATCTGT CTTTGTTTTT GCCATTTTTT TAGTCAATTT TCGGTCATT ATTGGGACAG	5040
GCACTCGCTT TGGAACAGAT TTAGCGAAGG AAGCTAAGAA GGTTTCATCA ACCACCCGTA	5100
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CAGTTCCTGC CAAACGTGGG ACTATTTATG ACCGAAATGG AGTCCCGATT GCTGAGGATG	5160
CAACCTCCTA TAATGTCTAT GCGGTCATTG ATGAGAACTA TAAGTCAGCA ACGGGTAAGA	5220
TTCTTTACGT AGAAAAACA CAATTTAACA AGGTTGCAGA GGTCTTTCAT AAGTATCTGG	5280
ACATGGAAGA ATCCTATGTA AGAGAGCAAC TCTCGCAACC TAATCTCAAG CAAGTTTCCT	5340
TTGGAGCAAA GGGAAATGGG ATTACCTATG CCAATATGAT GTCTATCAAA AAAGAATTGG	5400
AAGCTGCAGA GGTCAAGGGG ATTGATTTTA CAACCAGTCC CAATCGTAGT TACCCAAACG	5460
GACAATTTGC TTCTAGTTTT ATCGGTCTAG CTCAGCTCCA TGAAAATGAA GATGGAAGCA	5520
AGAGCTTGCT GGGAACCTCT GGAATGGAGA GTTCCTTGAA CAGTATTCCT GCAGGGACAG	5580
ACGGCATTAT TACCTATGAA AAGGATCGTC TGGGTAATAT TGTACCCGGA ACAGAACAAG	5640
TTTCCCAACG AACGATGGAC GGTAAAGGATG TTTATACAAC CATTTCCAGC CCCCTCCAGT	5700
CCTTTATGGA AACCCAGATG GATGCTTTTC AAGAGAAGGT AAAAGGAAAG TACATGACAG	5760
CGACTTTGGT CAGTGCTAAA ACAGGGGAAA TTCTGGCAAC AACGCAACGA CCGACCTTTG	5820
ATGCAGATAC AAAAGAAGGC ATTACAGAGG ACTTTGTTTG GCGTGATATC CTTTACCAAA	5880
GTAACATGA GCCAGGTTCC ACTATGAAAG TGATGATGTT GGCTGCTGCT ATTGATAATA	5940
ATACCTTTCC AGGAGGAGAA GTCTTTAATA GTAGTGAGTT AAAAAATTGCA GATGCCACGA	6000
TTGAGATTG GGACGTTAAT GAAGGATTGA CTGGTGGCAG AACGATGACT TTTTCTCAAG	6060
GTTTTGCACA CTCAAGTAAC GTTGGGATGA CCTCCTTGA GCAAAAGATG GGAGATGCTA	6120
CCTGGCTTGA TTATCTTAAT CGTTTTAAAT TTGGAGTTCC GACCCGTTTC GGTGTGACGG	6180
ATGAGTATGC TGGTCAGCTT CCTGCGGATA ATATTGTCAA CATTGCGCAA AGCTCATTTG	6240
GACAAGGGAT TTCAGTGACC CAGACGCAAA TGATTCGTGC CTTTACAGCT ATTGCTAATG	6300
ACGGTGTGAT GCTGGAGCCT AAATTTATTA GTGCCATTTA TGATCCAAAT GATCAAACCTG	6360
CTCGGAAATC TCAAAAAGAA ATTGTGGGAA ATCCTGTTTC TAAAGATGCA GCTAGTCTAA	6420
CTCGGACTAA CATGGTTTTG GTAGGGACGG ATCCGGTTTA TGAACCATG TATAACCACA	6480
GCACAGGCAA GCCAACTGTA ACTGTTCTCT GGCAAAATGT AGCCCTCAAG TCTGGTACGG	6540

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CTCAGATTGC TGACGAGAAA AATGGTGGTT ATCTAGTCGG GTTAACCGAC TATATTTTCT	6600
CGGCTGTATC GATGAGTCCG GCTGAAAATC CTGATTTTAT CTGTGTATGT ACGGTCCAAC	6650
AACCTGAACA TTATTCAGGT ATTCAGTTGG GAGAATTTGC CAATCCTATC TTGGAGCGGG	6720
CTTCAGCTAT GAAAGACTCT CTCAATCTTC AAACAACAGC TAAGGCTTTA GAGCAAGTAA	6780
GTCAACAAAG TCCTTATCCT ATGCCTAGTG TCAAGGATAT TTCACCTGGT GATTTAGCAG	6840
AAGAATTGCG TCGCAATCTT GTACAACCCA TCGTTGTGGG AACAGGAACG AAGATTAAAA	6900
ACAGTTCTGC TGAAGAAGGG AAGAATCTTG CCCCGAACCA GCAAGTCTTT ATCTTATCTG	6960
ATAAAGCAGA GGAGGTCCA GATATGTATG GTTGGACAAA GGAGACTGCT GAGACCCCTG	7020
CTAAGTGGCT CAATATAGAA CTGAATTTC AAGGTTCTGG CTCTACTGTG CAGAAGCAAG	7080
ATGTTCTGTC TAACACAGCT ATCAAGGACA TTAATAAAAT TACATTAACT TTAGGAGACT	7140
AATATGTTTA TTCCATCAG TGCTGGAATT GTGACATTTT TACTAACTTT AGTAGAAATT	7200
CCGGCCTTTA TCCAATTTTA TAGAAAGGCG CAAATTACAG GCCAGCAGAT GCATGAGGAT	7260
GTCAAACAGC ATCAGGCAAA AGCTGGGACT CCTACAATGG GAGGTTTGGT TTCTCTGATT	7320
ACTTCTGTTT TGGTTGCTTT CTTTTTCGCC CTATTTAGTA GCCAATTCAG CAATAATGTG	7380
GGAATGATTT TGTTTCATCTT GGTCTTGTAT GGCTTGGTCG GATTTTTAGA TGACTTTCTC	7440
AAGGTCCTTC GTAAAATCAA TGAGGGGCTT AATCCTAAGC AAAAATTAGC TCTTCAGCTT	7500
CTAGGTGGAG TTATCTTCTA TCTTTTCTAT GAGCGCGGTG GCGATATCCT GTCTGTCTTT	7560
GGTTATCCAG TTCATTTGGG ATTTTTCTAT ATTTCTCTCG CTCTTTTCTG GCTAGTCGGT	7620
TTTTCAAACG CAGTAAACTT GACAGACGCT GTTGACGGTT TAGCTAGTAT TTCCGTTGTG	7680
ATTAGTTTGT CTGCCTATGG AGTTATTGCC TATGTGCAAG GTCAGATGGA TATTCTTCTA	7740
GTGATTCTTG CCATGATTGG TGGTTTGCTC GGTCTCTTCA TCTTTAACCA TAAGCCTGCC	7800
AAGGTCCTTA TGGGTGATGT GGAAGTTTG GCCCTAGGTG GGATGCTGGC AGCTATCTCT	7860
ATGGCTCTCC ACCAAGAATG GACTCTCTTG ATTATCGGAA TTGTGTATGT TTTTGAAACA	7920
ACTTCTGTTA TGATGCAAGT CAGTTATTTC AACTGACAG GTGGTAAACG TATTTTCCGT	7980
ATGACGCCTG TACATCACCA TTTTGAGCTT GGGGGATTGT CTGGTAAAGG AAATCCTTGG	8040
AGCGAGTGGA AGGTTGACTT CTCTTTTGGG GGAGTGGGAC TTCTAGCAAG TCTCCTGACC	8100
CTAGCAATTT TATATTTGAT GTAAGAATGG CACCCTGATG TTTCAGGG	8148

(2) INFORMATION FOR SEQ ID NO: 12:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 9909 base pairs  
 (B) TYPE: nucleic acid

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(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:

TACTCCACCC TTAATATCCG TTCCTGTAAA TACTTTACCG CTTTAAAGTT CATAGAATTG	50
AACTTTTAAA TGCTTGCTT CAAGCATCTT TTCCATCCAA TTTTtaggag TTTGACCAGC	120
TTTAAATAAA AACCTTGCTG GGGTGATTAG TATAGATTTA TCTGCGATTT TATAAGCTTC	180
ATCAATAAAA TAGTGATATA TCGGCTCATC TCTGGCTTCT CCTGTTTCCT GATACGGAGG	240
ATTTCTATC ACGACATCAA ATTTcatttc ACTTTCCTCG CTAGATAGGC GCTCAAAACC	300
TATCATCTA TTCTTTTCC AGTCTTTGAT ATGGGTTTTA GATTCTTCTA CTTCTGGAC	360
TTCTAGCTCA TCCGCAAACA AACTCAATTG TTGAGATTGC TTTTgTTTtag CTGAATAAGG	420
ACTACTTTTT TTCAATCCAT CCATCTGAAA GACATTGTAA GAGATAATAG TCGCAATTTT	480
TTTCTTTTGC TCTAATGTTG GTTGATTTC AGTCTTAGCT AGATAATAGT CCTCAAAAGT	540
TGCCAAAAGA TTCTCACGGC CCAAAGGAG AGAATCTCCT TGATACTCAT AACCATACGA	600
AGCATGATAA GCATCTTTTA CAAGTTTATA AAATGTGACT TCATCTGAAA CCTCAGGACT	660
AATCCGTTGC AGTTTCTAT CAACAAAACC AACTCGCTCA GATAATGGAA TTTCTCACC	720
AGTTACGGTA TCATATCTCG TTACCATATA AGGTGCTTCA CCACAAGTTA CCTCTAACCA	780
TCGTAAGTCC ACATACTCCT CAAGACTTAA CGAGCCTAAT TTCGATTCTA CATATCCATT	840
TTGCTTTGCG ACCAACCACG TTGGTGTAAG CACTTCTGCC CTTATTTTTG TCCGATCTTT	900
TTGTTTATAT TTGGATTTTT CAGATCTGGG CTGAATCAAG TTGGCAAAGT TTCCAGTAAC	960
CTTACTTGGA TTGATGCGAT CACTTGGAGC AAATCCCTTT CCTAACAATT CATAAGAATG	1020
CGTAAAGCAA ACAATTGATT TCTTTGTCGT TCGATCTTTT AAAAGAATTT TTAATAAGTC	1080
AGCCGATTCT TTAGCCAAAC TTTCTTCACT AATATCTATT GTCATCAGCA ACCTCTCTTA	1140
TATTGTAAGC CCTATTATAT CATATTTTAA AGAATGAAAA TTTACTTGAA AAAAGTAATT	1200
CAATAAATAT CTCCTCGATG ACCAACTTCT AGAGTAGCAA CGACTAATTC ATCATCTACA	1260
ATTTGTACGA TAACTCGATA ATTACCAATT CTATAGCGCC ATTGACCAAC GCGATTACCA	1320
ACCAAAGCCT TTCCGTGTCG TCTTGGGTCT TCCAAACAT TGGTTTGTA ATAGTTTGTA	1380
ATTAGCTTCT GCGTATAACG GTCCAATTTT TTCAATTGCT TGATAAAACG TCTTGTGGA	1440
ACTAATTTAT ACAAATTATT CATCCTTCAA GCCTAAATCA TGCATCATTT CTTCCCAAGT	1500
AATGGGTTCA ACTCCTTTTT CCAAGTCTTC TAAATACTCT TGATAGGCTA AATCTGCCAC	1560



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ACCAGCATCG TATTCATCTT CTAGGGCTTC AAGAGTTTGT GTGCGAATAA GTTCCGAAAG	1620
GGAAACTCCT TCAAACCTAG CCATTGCTTT CATAAATGTT TTATCAGCTT CAGAAACTTT	1680
TAATGTAATA GTAGTCATCT TTTGTGCTCC CTTTTTTAAT GGTAACACCA TTGTATTACT	1740
TTTTAGGTGT TCAGTCAATA TAAAAAGAAC ACCTTCTCAG CGTTCTTTCT ATATCTCTGT	1800
CAATGGTGT GCGGTATCTG GTGAGGTATC ATAAACCTTA AAGTCTACTC CGACTCCCAG	1860
ATCAGCTTGA GCCAGCTGAT TGACCATGGT CATATGAGCC AGTTCCTTGA TATTGTTTTC	1920
CTTAGATAAA TGCCCAAGGT AAATCTTCTT AGTACGATTT CCTAGCGTCC GAATCATAGC	1980
TTCAGCACCG TCCTCGTTAG AAAGGTGACC AAGGTCAGAT AGGATTCTGT GTTTGAGTCG	2040
CCAAGCGTAA GAACCTGATC GCAAAATCTC TACATCATGG TTGGCCTCGA TAAGATAACC	2100
ATCCGCATTT TCGACAATGC CCGCCATACG GTCACTGACA TAACCTGTAT CTGTCAAGAG	2160
GACAAAACTC TTATCATCCT TCATAAAGCG ATAGAACTGC GGTGCGACTG CATCATGGCT	2220
TACACCAAAA CTCTCGATGT CGATATCTCC AAAGGTTTTG GTTTTACCCA TTTCAAAAAT	2280
ATGCTTTTGC GAAGAATCCA CCTTGCCAAG ATATTTACTA TTTTCCATAG CTTGCCAGGT	2340
CTTTTCATTG GCATAAAGAT CCATACCATA CTTGCGAGCC AAAACGCCTA CTCCATGGAT	2400
ATGATCTGAA TGCTCATGGG TAATCAAGAT GGCATCCAGG TCTTCTGGCT TACGGTTAAT	2460
TTCAGCTAGC AGACTGGTAA TTTTCTTGCC AGACAAGCCT GCATCTACTA AAAGCTTCTT	2520
TTTTGAGGTT TCCAGATAAA AAGAATTTCC ACTGGAACCC GACGCTAAAA TACTGTATTT	2580
AAAGCCTATT TCACTCATTC TAGTCTTCTA CTTATCCTC CCATACTTCT TCTTTCACCTG	2640
CATCCTTATC ATAAGGGAGT ACAATGGTAA AGGTTGAACC CTTGCCGTAT TCACTCTTGG	2700
CCCAAATAAA GCCCTTATGT TGTTTGATAA TTTCTTTAGC GATAGACAGT CCTAGACCTG	2760
TACCACCTTG TGCACGACTT CTAGCACGAT CCACACGATA GAAACGGTCA AAGATACGTG	2820
GTAAATCCTG CTTAGGAATC CCCAAACCGT GGTGAGAAAT GGATAAAATC ATCTGGTCTT	2880
CAGTTGTCTT CATCTGACA GTGATTTTAC CCCCATCTGG CGAATACTTA ATAGCATTAT	2940
TTAAATATT GTCGACAACC TGCGTCATCT TATCTGTATC AATTTCCATC CAGATAGAAT	3000
TGATGGGATA ATCTCTCACC AACTCATATT TTTTCTCCTT TTCCTGTCCT TTCATCTTGT	3060
CAAAACGATT GAGGATAAAG GTAATAAAG CAGTGAAGTT AATCAGTTCC ACATCTAGGT	3120
GACTGGTAGC ATTATCAATA CGTGAAAGAT GGAGGAGATC CGTCACCATG CGCATCATAC	3180
GGTTGGTCTC ATCAAGAGAA ACCTTGATAA AGTCTGGTGC TACAGTTTCA CACAAAGCCC	3240
CCTCATCCAA GGCTTCAAGA TAGGATTTTA CGCTAGTCAG AGGAGTCCGT AACTCATGGC	3300
TAACATTGGA AACAAAGAGT CTTGCTTCGC GTTCTTCTCT CTCCTGCTCC GTCGTATCAT	3360

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GCAAAACAGC CACCAAACCT GAAATAAAGC CAGACTCTCG ACGTATCAAG GCAAAGCGAA	3420
CTCGAAGGTT CAAATATTCG CCATTGATAT CTTGGGAATC TAGCAACAAT TCTGGACTTT	3480
GGGTAATCAA ATCACGCAAT TCATAGTTTT CTTCTATCTT GAGCAATTC AAAATGCTTC	3540
TATTCAGAAC ATCTTCCTTA ACCAACCCCA GTTGCTTCTT GGCTGTATCG TTAATCATGA	3600
TAATCTGACC CCGACGGTTA GTCGCAAGAA CCCCATCTGT CATATAAAAC AGAATACTAT	3660
TTAGCCTCTT ACTCTCTGT TCTAGATTTT CTTGAGTGAG ACGAATAACC TCCGACAAGT	3720
CATTCAAATT ATTGGTAATA TTGGTGATTT CAGACCCACC TTGCATATCA AGAACCTTGG	3780
AATAATCTCC TGCAATCAAA TCTTTAACCT TTTGATTGAC TTGCTTCAAC TGAATATTAT	3840
CACGTCTATT TTCCAGTAAT AAGAGGGTCA CAACAAGGAT GAAACCTAAC AAAATCAGGA	3900
TAAAGATAAA ATCTCTGGTA AAAATGGTTT GTTTCAGTAA ATCAAGCATT ATTTCTCATG	3960
TAATACCCTA CACCACGGCG CGTCAAGATA TACTCTGGTC GGCTGGGCGT ATCTTCAATC	4020
TTCTCAGCA GACGTCGTAC AGTCACATCA ACTGTACGGA CATCACCAA ATAGTCATAA	4080
CCCCAGACAG TCTCAAGCAA GTGTTGCGC GTGATGACTT GACCTGTATG CGATGCTAAA	4140
TGATACAAAA GCTCAAATTC ACGATGGGTT AAGTCTAGTT CTTGCGCATA TTTTITAGCC	4200
ACGTAGGCGT CTGGAACAAT TTCTAAATCC CCAATTTGGA TAGGTTGAGG TTTACTATCT	4260
GCTTCCTGAC CATCTACTGG CATAGGTTGA GAACGACGCA GAAGAGCTTT AACACGCGCC	4320
TGCAACTCAC GATTGGAGAA GGGTTTTGTT ACATAGTCAT CTGCCCCAAG TTCCAAACCG	4380
ATAACCTTAT CAAATTCACT ATCTTTGGCT GAAAGCATAA GAATGGGCAC ACTGCTTGTC	4440
TTACGAATGG TCTTAGCAAC TTCTAAACCA TCAATTTCTG GAAGCATCAA ATCCAGAATA	4500
ATAATATCTG GTTGCTCTGC TTCAAATGTC TCTAGCGCTT CACGACCATT AAAAGCAGTT	4560
ACAACCTTCGT AACCTTCCTT GGTCATATTA AACTTGATAA TATCCGAGAT TGGTTTCTCA	4620
TCATCTACAA TTAGTATTTT TTTCATATGT TCACCTTTTT CTCTACTATT ATACCAAAAA	4680
AATAGTCAGA AGACACAATA GCTAGTCTTG GCTACTGTCT AAGTTGGCTT GTGCATAAAC	4740
CTGCCAGATT TTTTGTGGG GTTTGGCAAG TGGGTAATTC TTGAATTCTT CTGGTGAAAG	4800
CCAGCGAACT TCCCTATCTG AAAAATCATG GAAGTCACTC ACCTGACCTG CTACAATCTG	4860
TACATGCCAT TTTGATGAC TAAAAACATG CTGGACTGTA TCAAAACAAA CATCAAGCCA	4920
ATCAACATCT AGGTCATAGT CCTGCTGGAA ACTCTCTTCT GGACTGGGAC CAAAGTTTAC	4980
ACTTTCTTCC GCAACCTGAT GAAAGAGGTC AACTGCTCT TCTTGCGAAA AGTTATCAAC	5040
TTCTATAAAG GGGAAATGCC AAAAACCTGC CAAGAGCTTT TCGCTTTCAT TTTTITCAAG	5100

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TAAAAATTGT CCTTGAGAAT TTTTCACAAC TAAGGCTTTA AGATAAATAG GAACCGGCTT	5160
TTTCTTAGGA GATTTAATTG GATAACGGTC CATGGTTCCA TTCTGATATG CCGCACTAAA	5220
GTCCTTGACT GGGCTTTCTT CAGGTCTGGG ATTTACAGGA GACTCAATAT CAGACCCTAA	5280
GTCCATCAAG GCTTGATTAA AATCACC CGG ACGATCCGGA TTAATCAAGA TCTCCATCAT	5340
TGCCTGAAAA ATTTTTCGAT TACTTGGAAT CCCAATATCG TGGTTGACTT CAAACAGACG	5400
CGCCAAGACC CGCATGACAT TACCATCTAC AGCTGGCTCA GGCAAGTTAA AAGCAATACT	5460
GGAAATGGCT CCTGCTGTGT AAGGTCCAAT CCCTTTCAAG CTGGAAATTC CTTCATAGGT	5520
ATTTGGAAAT TGGCCACCAA AGTCAGTCAT AATCTGCTGG GCTGCAGCCT GCATATTGCG	5580
AACTCGAGAA TAATAGCCCA AGCCCTCCCA AGCTTTCAGT AAACCTCTCT CAGGCGCAGT	5640
TGCCAGACTT TCGACAGTTG GAAACCAGTC CAAAAATCTT TCGTAGTAAG GGATAACTGT	5700
ATCCACCCTG GTCTGCTGAA GCATGATTTC AGATACCAG ATGTGATAAG GATTTTACT	5760
TCTCTCCAA GGCAATCTC TTTTGTTC ATCATACCAA GCGAGAAGTT TCTCAGGAA	5820
AGAAATGACT TTCTCTCCG GCCACATGAC GATACCGTAT TCTTCAAAT CTAACATATC	5880
TCTAGTATAA CACAGAAGGT TTCACCTGTC TTTGTATCTG ATTTATAATA TTTCAATAG	5940
ATAGTATATA ACTTTCTAT CTACTTATAC TCAATGAAAA TCAAAGAGCA AACTAGGAAG	6000
CTAGCCGAG GTTGCTCAA ACACCTGTTT GAGGTTGTGG ATAGAACTGA CAGAGTCAGT	6060
ATCATATACT ACGGCAAGGT GAAGCTGACG TAGTTTGAAG AGATTTTCGA AGAGTATAAA	6120
TCTTATTGAT GAACTGCTTG CAGTCTGAGA AAAAATGAGC TTGGATATTA TTTCCAACT	6180
CACTTAAAGT CAATTTCAAT CCACTAGAAC AAGCCTAGTA CAGTTCCATC GCTTTCAACA	6240
TCCA TGTTGA GAGCTGCTGG ACGTTTGGGA AGACCTGGCA TGGTCATAAC ATCACCAGTT	6300
AAGGCAACGA TGAAGCCTGC ACCTAATTTT GGTACCAATT CACGAATGGT AATTTCAAAG	6360
TTTCTGGTG CTCCAAGCGC ATTTGGATTG TCTGAGAAAC TGTATTGAGT TTTAGCCATA	6420
CAGATTGGCA ATTTGTCCA ACCGTTTGA ACGATTTGAG CAATTTGTGT TTGAGCTTTC	6480
TTCTCAAAGT TCACTTTGCT ACCACGATAG ATTTCACTGA CAATTTTTC AATCTTTTCT	6540
TGGACAGAAA GGTCAATTATC ATACAAACGT TTATAGTTAG CTGGATTTTC AGCAATTGTC	6600
TTAACAACTG TTTGGCAAG TGCTACTCCA CCTTCTGCTC CATCAGCCCA GACACTAGCC	6660
AATTCAACTG GTACATCGAT TGAGGCACAG AGTTCTTTTA AGGCTGCAAT TTCAGCTTCT	6720
GTATCAGATA CAAATTCGTT AATAGCTACA ACTGCTGGAA TACCGAATT ACGGATATTT	6780
TCAACGTGGC GTTCAAGTT AGCAAAACCT GCACGAAGT CCTCTACATT TTCTTCAGTC	6840
AGAGCGTCTT TAGCCACACC ACCATTTCATC TTAAGGGCAC GAAGGGTTC GACAATAACA	6900

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ACTGCATCTG GAGATGTTGG CAAGTTTGGT GTCTTGATAT CAAGGAATTT CTCAGCACCA	5960
AGGTCCGCAC CAAAACCAGC TTCAGTAACA GTGTAATCAG CCAAGTGAAG GGCTGTTGTC	7020
GTCCGCAAAA CAGAGTTACA GCCATGAGCG ATATTGGCAA ATGGACCACC GTGTACAAAG	7080
GCAGGTGTAC CGTAAATGTT CTGAACCAAG TTTGGCTTAA TAGCATCCTT CAAAATCAAA	7140
GCCAAGGCAC CCTCAACCTG CAAATCACCT ACAGAAACAG GCGTACGGTC ATAGCGATAA	7200
CCAATAACGA TATTCGCCAA ACGACGTTTC AAGTCCTCGA TGTCCGTTGC CAAGCAAAGA	7260
ATTGCCATGA TTTCTGAAGC AACTGTAATA TCAAAACCAT CCTCACGTGG AATACCGTTT	7320
AGAGGACCAC CAAGACCAAC AGTCACATGG CGGAGCGTAC GGTCGTTCAA GTCCACAACG	7380
CGTTTCCAGA GGATACGACG TTGATCAATT CCCAGCTCAT TCCCTTGGTG CAAGTGGTTG	7440
TCAATCAAGG CAGAAAGGGC ATTGTTGGCA GTTGTAAATAG CATGCATATC TCCAGTAAAG	7500
TGGAGGTTGA TGTCTTCCAT TGGCAGAACT TGTGCATACC CACCACCAGC AGCACCACCC	7560
TTGATCCCCA TGA CTGGACC AAGAGACGGT TCGCGGATAG CAATCATGGT TTTCTTGCCA	7620
ATCTTGTTCA AGGCATCCGC AAGACCAATG GTAAGCGTCG ACTTTCCTTC ACCTGCAGGT	7680
GTTGGGTTGA TGGCAGTAAC CAAGATCAAT TTACCGACTG GATTGCTCTC AACTGCACGA	7740
ATTTTATCAA AGCTGAGTTT AGCCTTGTA C TTTCCGTACA ACTCCAAATC GTCATAAGAA	7800
ATACCAAGTT TCTCTACAAC ATCAACAATT GGCTTCAACT CAATACTCTG TCGGATTTCA	7860
ATATCTGTTT TCATTCAAAA TTCCTCTAAC CTCTTATATG ATAATTCATT ATATCACAAA	7920
ACAAGATTTT TAACATCCTA AAACCTCTCTA AACGTTCTGA AATATCTCTG TTTTAAAGAC	7980
TTTATAGAGT CTTTCTTAAA TTTTATATGG CTTTATAGTT TGAAACTATA ATAAATCTTC	8040
GTTTTTACCA AAAATTTATC ACTTTCATTT TACTTACCGC TTATTTTGT GTACAATAGT	8100
GCTATGAAAA TTTTAGTTAC ATCGGGCGGT ACCAGTGAAG CTATCGATAG CGTCCGCTCT	8160
ATCACTAACC ATTCTACAGG TCACCTGGGG AAAATTATCA CAGAGACTTT GCTTCTGCA	8220
GGGTATGAAG TTTGTTAAT TACGACAAAA CGAGCTCTGA AGCCAGAGCC TCATCCTAAC	8280
CTAAGTATTC GAGAAATTAC CAATACCAAG GACCTTCTAA TAGAAATGCA AGAACGTGTT	8340
CAGGATTATC AGGTCTTGAT CCACTCAATG GCTGTTTCTG ACTACACTCC TGTATATATG	8400
ACAGGGCTTG AGGAAGTTCA GGCTAGCTCC AATCTAAAAG AATTTTAAAG CAAGCAAAAT	8460
CATCAGGCCA AGATTCTTC AACTGATGAG GTTCAGGTTT TGTTCCCTAA AAAGACACCC	8520
AAAAATCATAT CCTAGTCAA GGAATGGAAT CCTACTATTC ATCTGATTGG ITTCAAACCTG	8580
CTGGTTGATG TTACCGAAGA TCATCTGGTT GACATTGCAC GAAAAAGTCT TATCAAGAAT	8640

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CAAGCAGATT TAATCATCGC GAATGACCTG ACTCAAATTT CAGCAGATCA GCACCGAGCT	8700
ATATTGTGTTG AGAAAAATCA GCTTCAAACA GTCCAGACTA AAGAAGAAAT TGCAGAACTC	8760
CTCCTTGAAA AAATTCAAGC CTATCATTCT TAGAAAGGAA AACTATGGCA AACATTCTCT	8820
TGGCTGTAAC GGGTTCAATC GCCTCTTATA AGTCGGCAGA TTTAGTCAGT TCTCTAAAAA	8880
AACAAGGCCA TCAAGTCACT GTCTTAATGA CTCAGGCTGC TACAGAGTTT ATCCAACCTT	8940
TGACACTACA GGTACTCTCA CAGAATCCTG TCCACTTGGA TGTCATGAAG GAACCCATC	9000
CTGATCAGGT CAATCATATC GAACTTGGA AAAAAGCAGA TTTATTTATC GTGGTACCTG	9060
CAACTGCTAA CACTATTGCA AACTAGCTC ACGGATTTGC GGACAACATG GTAACCAGTA	9120
CAGCTCTAGC CCTACCAAGT CATATTCCCA AACTAATAGC TCCTGCTATG AATACAAAAA	9180
TGTATGACCA TCCAGTAACT CAGAATAATC TGAAAACATT AGAAACTACG GCTATCAGCT	9240
GATTGCTCCT AAGGAATCCC TACTAGCTTG TGGAGACCAC GGACGAGGAG CTTTAGCTGA	9300
CCTCACAATT ATTTTAGAAA GAATAAAGGA AACTATCGAT GAAAAAACGC TCTAATATTG	9360
CACCCATTGC TATCTTTTTT GCTACCATGC TCGTGATACA CTTTCTGAGC TCACCTATCT	9420
TTAACCTTTT TCCATTTCCA ATCAAACCGA CCATTGTTCA TATTCCTGTC ATTATTGCCA	9480
GCATTATTTA TGGTCCACGA GTTGGGGTTA CACTTGGATT TTTGATGGGA TTA CTTAGCT	9540
TGACGGTTAA CACGATTACG ATTCTACCGA CAAGCTACCT CTTCTCTCCC TTCGTACCAA	9600
ACGGAAACAT CTA CTAGCT ATCATTGCCA TCGTCCCACG TATTTTGATT GGTTTAACTC	9660
CTTACTTAGT CTATAAACTG ATGAAAAACA AGACTGGTCT GATTTTAGCT GGAGCCCTTG	9720
GTTCCTTGAC AAATACTATC TTTGTCCTTG GAGGAATCTT CTTCTTATT GGAATGTTT	9780
ATAATGGAAT TATCCAACCT CTTCTGGCAA CCGTTATCTC AACAAATCCA ATTGCTGAAT	9840
TGGTCATTTT TGCAATTCTA ACCCTAGCCA TTGTTCCACG ACTACAAACC TTGAAAAAAT	9900
AAAAACAGG	9909

## (2) INFORMATION FOR SEQ ID NO: 13:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1126 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:

TAATTTTCAT ATAATAGTAA AATAGAATGT GTGATTCAAT AATCACCTCA AATAGAAAGG	60
AAATTCTATG TCAAACTCTAT CTGTTAATGC AATTCGTTTT CTAGSTATTG ACGCCATTAA	120

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TAAAGCCAAC TCAGGTCATC CAGGTGTGGT TATGGGAGCG GCTCCGATGG CTTACAGCCT	180
CTTTACAAAA CAACTTCATA TCAATCCAGC TCAACCAAAC TGGATTAAAC GCGACCGCTT	240
TATTCTTTCA GCAGGTCATG GTTCAATGCT CCTTTATGCT CTTCTTCACC TTTCTGGTTT	300
TGAAGATGTC AGCATGGATG AGATTAAAG TTTCCGTCAA TGGGGTTCAA AAACACCAGG	360
TCACCCAGAA TTTGGTCATA CGGCAGGGAT TGATGCTACG ACAGGTCCTC TAGGGCAAGG	420
GATTTCAACT GCTACTGGTT TTGCCAAGC AGAACGTTTC TTGGCAGCCA AATATAACCG	480
TGAAGGTTAC AATATCTTTG ACCACTATAC TTACGTTATC TGTGGAGACG GAGACTTGAT	540
GGAAGGTGTC TCAAGCGAGG CAGCTTCATA CGCAGGCTTG CAAAACTTG ATAAGTTGGT	600
TGTTCTTTAT GATTCAAATG ATATCAACTT GGATGGTGAG ACAAAGGATT CTTTACAGA	660
AAGTGTTTGT GACCGTTACA ATGCCTACGG TTGCATACT GCCTTGGTTG AAAATGGAAC	720
AGACTTGGAA GCCATCCATG CTGCTATCGA AACAGCAAAA GCTTCAGGCA AGCCATCTTT	780
GATTGAAGTG AAGACGGTTA TTGGATACGG TTCTCCAAAC AAACAAGGAA CTAATGCTGT	840
ACACGGCGCC CCTCTGGAG CAGATGAAAC TGCATCAACT CGTCAAGCCC TCGGTTGGGA	900
CTACGAACCA TTTGAAATTC CAGAACAAGT ATATGCTGAT TTCAAAGAAC ATGTTGCAGA	960
CCGTGGCGCA TCAGCTTATC AAGCTTGGAC TAAATTAGTT GCAGATTATA AAGAAGCTCA	1020
TCCAGAACTG GCTGCAGAAG TAGAAGCCAT CATCGACGGA CGTGATCCAG TCGAAGTGAC	1080
TCACGACGAC TTCCAGCTT TAGAAAATGG TTTTCTCAA GCAACT	1126

(2) INFORMATION FOR SEQ ID NO: 14:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2520 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:

CCGGCAACAA AAAAGAAAA ATCAACAGTT AAAAAAATC TAGTCATCGT GGAGTCGCCT	60
GCTAAGCCAA GACGATTGAA AAATATCTAG GCAGAACTA CAAGGTTTTA GCCAGTGTCTG	120
GGCATATCCG TGATTTGAAG AAATCCAGTA TGTCCGTCGA TATTGAAAAT AATTATGAAC	180
CGCAATATAT TAATATCCGA GGAAAAGGCC CTCTTATCAA TGAAGTGAAG AAAGAAGCTA	240
AAAAAGCTAA TAAAGTTTTT CTCGCGAGTG ACCCGGACCG TGAAGGAGAA GCGATTTCTT	300
GGCATTGGC CCATATTCTC AACTTGGATG AAAATGATGC CAACCGTGTG GTCTTCAATG	360

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AAATCACCAA	GGATGCAGTC	AAAAATGCTT	TTAAAGAACC	TCGTAAGATC	GATATGGACT	420
TGGTCGATGC	CCAACAAGCT	CGTCGGATCT	TGGATCGCTT	GGTAGGGTAT	TCGATTTTCGC	480
CTATTTTGTG	GAAGAAGGTC	AAGAAGGGCT	TGTCAGCAGG	TCGCGTTCAG	TCCATTGCCC	540
TTAAACTCAT	CATTGACCGT	GAAAATGAAA	TCAATGCCTT	CCAGCCAGAA	GAATACTGGA	600
CAGTTGATGC	TGTCTTTAAA	AAGGGAACCA	AACAATTTCA	TGCTTCCTTC	TATGGAGTAG	660
ATGGTAAAAA	GATGAAACTG	ACCAGCAATA	ACGAAGTCAA	GGAAGTCTTG	TCTCGTCTGA	720
CGAGTAAAGA	CTTTTCAGTA	GATCAGGTGG	ATAAGAAAGA	GCGCAAGCGC	AATGCTCCTT	780
TACCCATATAC	CACTTCATCT	ATGCAGATGG	ATGCTGCCAA	TAAAATCAAT	TTCCGTACTC	840
GAAAAACCAT	GATGGTTGCC	CAACAGCTCT	ATGAAGGAAT	TAAATATCGGT	TCTGGTGTTT	900
AAGGTTTGAT	TACCTATATG	CGTACCGATT	CGACTCGTAT	CAGTCCTGTA	GCGCAAAATG	960
AGGCGGCAAG	CTTCATTACG	GATCGTTTTG	GTAAGCAAGTA	TTCTAAGCAC	GGTAGCAAGG	1020
TCAAAAACGC	ATCAGGTGCT	CAGGATGCCC	ATGAGGCTAT	TCGTCCGTCA	AGTGTCTTTA	1080
ATACACCAGA	AAGCATCGCT	AAGTATCTGG	ACAAGGATCA	GCTTAAGCTA	TATACCCCTA	1140
TCTGGAATCG	TTTTGTGGCT	AGCCAGATGA	CAGCGGCCGT	TTTGTATACC	ATGGCTGTTA	1200
AATTGTCTCA	AAAAGGGGTT	CAATTTGCTG	CCAATGGTAG	TCAGGTAAAG	TTTGATGGTT	1260
ATCTTGCCAT	TTATAATGAT	TCTGACAAGA	ATAAGATGTT	ACCGGACATG	GTTGTTGGAG	1320
ATGTGGTCAA	ACAGGTCAAT	AGCAAACCAG	AGCAACATTT	CACCCAACCG	CCTGCCCCGT	1380
ATTCTGAAGC	AACACTGATT	AAAACCTTAG	AGGAAAAATGG	GGTTGGACGT	CCATCAACCT	1440
ACGCGCCAAC	CATTGAAACC	ATTCAGAAAC	GTTATTATGT	TCGCCTGGCA	GCCAAACGTT	1500
TTGAACCGAC	AGAGTTGGGA	GAAATTGTCA	ATAAGCTCAT	CGTTGAATAT	TTCCAGATA	1560
TCGTAAACGT	GACCTTCACA	GCTGAAATGG	AAGGTAAACT	GGATGATGTC	GAAGTTGGAA	1620
AAGAGCAGTG	GCGACGGGTC	ATTGATGCCT	TTTACAAACC	ATTCTCTAAA	GAAGTTGCCA	1680
AGGCTGAAGA	AGAAATGGAA	AAAATCCAGA	TTAAGGATGA	ACCAGCTGGA	TTTGACTGTG	1740
AAGTGTGTGG	CAGTCCAATG	GTCATTAAAC	TTGGTCGTTT	TGGTAAATTC	TACGCTTGTA	1800
GCAATTTCCC	AGATTGCCGT	CATACCCAAG	CAATCGTGAA	AGAGATTGGT	GTTGAGTGTC	1860
CAAGCTGTCA	TCAGGGACAA	ATTATTGAGC	GAAAAACCAA	GCGTAATCGC	CTATTCTATG	1920
GTTGCAATCG	CTATCCAGAA	TGTGAATTTA	CCTCTTGGGA	CAAGCCTGTT	GGTCGTGACT	1980
GTCCAAAAATG	TGGCAACTTC	CTCATGGAGA	AAAAAGTCCG	TGGTGGTGGC	AAGCAGGTTG	2040
TTTGTAGCAA	AGGCGACTAC	GAGGAAGAAA	AGATGGCTCT	TTGTCAACTG	TAGTGGGTTG	2100
AAGTCAGCTA	AGCTCGAGAA	AGGACAAATT	TTGTCTTTTC	TTTTTTGATA	TTCAGAGCGA	2160

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TAAAAATCCG TTTTTGAAG TTTTCAAAGT TCCGAAAACC AAAGGCATTG CGCTTGATAA	2220
GTTTGATGAG ATTATTGCTC GCTTCCAATT TGGCGTTAGA ATAGTGTAGT TGAAGGGCGT	2280
TGACGATTTT CTCTTTGCTC TTTAGAAAAG TTTTAAAGAC AGTCTGAAAA AGAGGATGAA	2340
CCTGCTTTAG ATTGTCCTCA ATGAGTCCGA AAAATTTCTC CGGTTCTTA TTCTGAAAGT	2400
GAAACAGCAA GAGTTGATAG AGCTGATAGT GATGTTTCAA GTCTTGTGAA TAGCTCAAAA	2460
GCTTGTTTAA AATCTCTTTA TTGGTTAAAT GCATACGAAA AGTAGGGCGA TAAAAATGTT	2520

(2) INFORMATION FOR SEQ ID NO: 15:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 10993 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15:

TTTTCTCGAT AATAACTTCC ACCTTATTAT TTGGGATACC CTCCTCTTCT TCACCACCAC	60
GTTCATAGTA GTCATCGCGA TAGAGAAAAG CTACGATATC AGCGTCCTGC TCAATAGACC	120
CAGATTACAG AATATCAGAC AAGACCGGTC TCTTGTCTTG ACGTTGTTCT ACACCACGAG	180
AAAGCTGACT CAGAGCGATT ACTGGAACCT TCAATTCCTT GGCTAGTATT TTCAACTGAC	240
GAGAAATTTC AGAAACTTCT TGTTGACGAT TTTCTCGACC AGTCCCGTG ATAAGTTGCA	300
AATAGTCTAT CAAAATCAAA CCAAGATTTC CAGTTTCTTG AGCCAATTTA CGAGAACGAG	360
AACGAATCTC TGTAATCCGA ATACCTGGCG TATCATCGAT ATAGATACTG GCGTTAGCTA	420
GATTACCCTG AGCAATAGTA TATTTTGGCC ACTCCTCATC TGTCAATTGC CCTGTACGGA	480
TAGAATGTGA CTCCACTAAG CTTTCTGCAG CTAACATACG ATCTACCAAG CTTTCCGCAC	540
CCATTTTCGAG TGAAAAAATA GCAACCGTTT TGTCCAACCT AGTCCCAATG TTCTGAGCGA	600
TATTCAAGGC AAATGCTGTC TTACCAACTG CTGGACGAGC TGCTAAGATA ATCAACTCCT	660
CCTCATGAAG TCCTGTTGTC ATATGATCCA AATCAGGATA ACCTGTCGCA ATACCTGTAA	720
TATCGGTCCT TTGTTGCGAG CGAGCTTCCA GATTTCCAAA GTTGAGATTC AACACATCTC	780
GAATGTTCTT AAACCCGCTT CGATTTGCAT TTTCACTGAC ATCAATCAAC CTTTTTCTG	840
CCTGAGCAAT AATTTATCA GCTGGTTGTG ACGCTTCGTA AGCTTGTTG ACAGACTCTG	900
TCAACTTGGC AATTAAACGA CGTAGCATG CTTTTCTGTC AACAACTTTA GCATAATACT	960
CCGCATTAGC AGAAGTTGGC ACAGAATTAA CAATCTCAAC CAAGTAAGAC AAGCCACCAA	1020



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TATTCTGTAA ATCACCTTGA TTATCAAGGA TAGTACGAAC CGTTGTTGCA TCTATGGCAT	1080
CACCACGATC GGATAAATCG ACCATGGCTT GGAAAATCAA ACGATGGGCA TACTTAAAAA	1140
AGTCCCGAGA CTCAATGTAT TCTCGCACAA AAACAAGTTT ACTCTCATCA ATAAAGATAG	1200
CCCCTAAAC GGATTGCTCA GCTAAGATAT CTTGAGGTTG TACTCGTAAC TCTTCTACTT	1260
CTGCCATCAG ACTTCCCTTC CTTTACAAAT CTTGTCAAGA AGGTGTAAAC TTATCCTTCT	1320
TTACACAGAA GATTGATTAC ACTTGTGATA TCTTGATAGA TTTTCACTGG CACATCAATC	1380
AAACCAACCG CTCGAATCGG AGCTTGTACT TGAATATGAC GTTTATCAAT CTTAATTCCA	1440
AATTGCTTTT GCAATCTTC TGCAATCTTC TTATTGGTAA TAGAACCAAA GGTACGACCA	1500
TCTGGACCAA CTTTTCAAC AAATTCTACA ACAGTTTCTT CTGCTTCAAG TTGTGCTTTA	1560
ATTGCTTTTC CTCTGCAAT CATCTCAGCG TGAGCTTTTT CTTCGGATT TGTGTTACCA	1620
CGAAGTTCAC CTACAGCTTG AGCAGTCGCT TCTTTGGCTA GATTCTTTTT GATAAGAAAG	1680
TTTTGCGCAT ACCCTGTTGG TACTTCCTTA ATTCGCTT TTTTACCTT TCCTTTAACA	1740
TCTGCTAAAA AGATTACTTT CATTCTTCTT TCTCCTTTT CTTCATTTCA TTTAATACAA	1800
TTTCTGTGAG TTTTTCACCT GCTTCTGACA AGGTTACATC TTTAATTTGA GCTGCTGCCA	1860
AATTAAAGTG GCCTCCACCG CCTAACTCTT CCATAATCCG TTGTACATTC AGTTTACTAC	1920
GACTTCGAGC TGAGATAGAG ATAAATCCTT GTGTATTCTT CGCAAGAACA AACTCGCTT	1980
CAATACCTGA CATGGCTAAC ATGGCATCTG CTGCCCTACT AATAACAAC GTATCATAGC	2040
ATTTATGTC CTTAGCCTCT GCTATTAGTA CATCTGAACC TAATTTACGC CCTGTAAAA	2100
TAAGTTCATT GACCTACGA TATTCTTCAA AATCTGTGCG AGCGATTTC TGGATAGCAA	2160
TACTATCACT TCCGCGCGTT CTGAGATAGC TAGCAACATC AAATGTCCGA CTAGTTACTC	2220
GCGAGGTGAA ATTTTGTAGTA TCCAACATCA TACCAGCCAT CAAGACACTT GCTTGCATAC	2280
GACTCAAACG ATTTTCTTA GAATTCTGGA ACTGAATCAA TTCCGTTACC AACTCACTGG	2340
CACTACTTGC ACCACTTTCG ATATAAGTAA TAACCGCATT ATCTGGAAAA TCCTGATCCC	2400
TTCTATGGTG GTCAATAACA ATGGTTTGGG TAAATAAATC ATAAAATTCT TTTGATAATG	2460
TTAAGGCTGT CTTTGAATGG TCTACAAGAA TCAACAAAGA ACGATTGGTC ACCATCCCCA	2520
TTGCATCCTT AACAGACAAC AACTTCGTAA CTCCTTCTTT TTCTATGAAT GAAACAGCTC	2580
GTTCATATC TGGAGACATT TGTCTTCAT CATAAAGAGC ATAGCTATTT TCAATCACAT	2640
TGCTGGCGAA CAACTGCATA CCTACAGCAG AGCCCCAAGC ATCCATGTCT AAATTTTGT	2700
GACCGACTAC AAAAACCTGA TCTACACTCC GAATCTTATC TGAAATAGCT GTCATCATAG	2760
CGCGGTACG AGTCCGTGTA CGCTTGATTG AAGCAGCAGA CCCACCACCA AAATAAACTG	2820

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GATTTTTCGT TTCGTCGTTT TCCTTAACAA CCACCTGGTC GCCACCACGT ACTTCAGCCA	2880
AGTTCAAATT GAGCAAAGCA ACTTTCCTTA TCTCATCATG ATTTCCATCG CCATAAGAAA	2940
ATCCCATACT TAAGGTCAAG GGCAACTGTC TCTGTTTCGA CTCTTCTCTG AAAGCATCAA	3000
TAACAGAAAA TTTATCATTC ATCAAGCCCT CAAGCACCGT GTAGTCAGTA AATAGATAAA	3060
ATCGATCCAT ACTTACCCGA CGAGAAAACA TCATGTGTTT TTCTGAAAAC TCTGATATAA	3120
AATTAGCTAC AAAACTATTG ATTTGACTAA TATCTGACTC AGAAGTTTCA TCCTCCAAAT	3180
CATCATAATT ATCCACAGAG ACAATCCCAA TCACTGGTCT ACTTGTACC AATTCATCTG	3240
TTATGGCTTG TTCCCTGGAT ACATCTACAA AATACAAAC ACCGGAAGAA GCATCCATAT	3300
GAACAGCATA ACGCTTCTCA CCAAGCTTGG CATAAGTAGA CGGATTTCTT ACTGAAGCCT	3360
TGATAATCGT TTGAACAGCT TCTAAATCAA AATCACCATC TTCCTTGGTC AAAATCAATT	3420
CAGCATAGGG ATTAAACCAC TCAACCTCTC CAGAAGATAA ATTCAATTTT ATAACACCTA	3480
CAGGCATCTG TTCCAATAGA GCTGTCAAAC TTTCTCCGC TTGGTGGTTT ACATACTGTA	3540
TCTGTCTAC ATCACTCCTT GTATAATGCA CTCTCAGTTT CTAAATAAA AAAACATAGC	3600
CTCTACAAA AAGAAACAAA ATTAAACCG TCAACAGATT ATTATTAACA AAAATAATGA	3660
AAGTGGATAA GACTCCAAAC GCAATCAATC CTACTAGAAT AGGAAAAATT GGACTTACAT	3720
AAAATTTTTT CATTCAAAAC CTCTTGGCAC CCATTATACC ATAATACCCC TCAAAAAGCG	3780
ACTTTTTAAA AGTGTAAATCA GTAATCTAT CAATTATAAG AAAAAGGTAG TTTACAATTC	3840
AGTAAACCTA CCTTTACACA TATTGAAAT AAGATTCTTT AACCTCTAAC AAACCAATTT	3900
CGCCATCCTC ACGACGATAA ATCACATTGG TTGTCTGATC TTCAACATCC ACATAGATAA	3960
AGAAATCATG CCCCATAAA TCCATTTGTA GAATTGCTTC TTCCAAATCC ATTGGTTTTA	4020
AATCAATTTG TTTTGAACGA ACAACTTTAG ACTGGACAAT ATTTGAATCT TCCACCAAAG	4080
CATCTGTAAA TAATTGACCA GTTGCTACCT TATTTTATT TTTACGCTCG ATTTTGTATT	4140
TATTTTACG AATCTGACGT TCAATTTTAT CAGTTACAAG GTCAATTGAA CCATACATAT	4200
CTTGAGATAC ATCTTCTGCG CGGAGAGTAA TAGATCCAAG CGGAATCGTT ACTTCCACTT	4260
TAGCCGTTTT TTCACGATAA ACTTTTAAGT TAATTCGGGC ATCCAACTCT TGTCTGGTT	4320
GGAAGTACTT TTCGATCTTT TCGAGTTTAG AACTACATA ATCACGAATT GCTTCTGTTA	4380
CTTCTAGGTT TTCACCACGG ATACTATATT TAATCATATG AGTACCTTCT TTCTAAACAT	4440
TTTTGTTTTT ATGATTTTAT TATAACGCTT TCATTCTATT TTTGCAAAT TTTTCTCAT	4500
CTTACAAGGG AAAATGTTTT TACATCCTTA GCACCAGCTT CTTCCAACAG TTTCTTAACA	4560

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CGATTTATAG TTGCTCCTGT AGTATAGATA TCATCTATAA GTAGGATTTT TTTAGGAATA	4620
GTGACTCCAC TTTTAATAAA GAAAGGAAGT TCTGTCCCCA AGCGCTCTGA ACGATTTTTA	4680
GAAGAACTGG CTCTCTCTTC TCTTTTCTCT AATAAATCCA GATACTCAAA GCCTGCTGCC	4740
TCTACCAAGC CCTCAACCTG ATTAAATCCT CTATTAGCAT ATCTATCAGG ACTTAGGGGA	4800
ATTACAACAA ATTGATACTC TTTGTACTTT TTCAACTCCT CACTTAAAAA TGAAGCGAAA	4860
ACTTTTCTTA ACAGGAAGTC TCCATCAAC TTATACCGAC TGAAAAAATC CTTCATAGCT	4920
TGATTGTAAG TAAAAATCGC TCTATGACTG ACTTCAACTC CCTCTTTACA CCAAAGTTGA	4980
CAATCTTGAC ACTTTGTTGA CAACTCTGTT TTCATACAAT TTGGACAGTT CTCTTCCCCA	5040
ATTCTTTCAA AAGTAGAATC ACAGTCTGAA CAAAGACAAG AGTCATCATT CCTCAGAAGT	5100
AAGAGACTAC TAAAAGTTAA AACAGTCTTC ATAGTCTGCC CACATAACAA GCACTTCATA	5160
GACCAGCCTC CTTATTCATC ATCTGAATTT CCTTAATCGC CTTCTTGATT GAAGCATTTA	5220
ACCCATCATG GAAGAAAAGC AAATCTCCTG TCGGTCTATC CATGCTTCGT CCAACTCGTC	5280
CACCAATCTG AATCAAACTA GACTTGGTAA ACAACGATG ATTGGCCTCT ACTACGAAAA	5340
CATCCACACA AGGGAAGGTA ACTCCGCGCT CCAAGATTGT CGTACTGATA AGTATTGTCA	5400
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TAATTTCTGA AGCAAAAATG AGTAACGGAT AAGCTGTCTT TCTCTGCTTC TCAATATAGG	5580
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TTGGTTTTGG AATAATCAAC GGATTTCAT GAAACCGTCT CGGTAAATTC AGTCTTTTTA	5700
GTTCTCCTAA ACGGACCTTT TTATCTAACT CATTGGTCGA AGTCGCTGTT AAAAAGATTC	5760
TCAATCCATT CTCCTTTACA CTATTCTTGA CAGCGTGGTA AAGCATGGGA TTATCAACAT	5820
AAGGAAAAGC ATCTACTTCA TCCACTATCA GCAAATCAAA AGCTTGATAA AACTTCAATA	5880
ACTGATGGGT TGTTGCAACA ACTAGTGGTG TTCGAAAATA AGGTTCCGAT TCTCCATGTA	5940
GCAAAGCTAT CCCGCAAGAA AAATCCTGTT GCAGGCGCTT GTACAGCTCC AAACAAACAT	6000
CTATGCGAGG ACTAGCCAAA CAACTGCAC CACCCGCATT GATCACTTTA GCCACTACTT	6060
GATAAATCAT TTCTGTCTTT CCAGCTCCTG TTACCGCATG AACTAAGGTT GGCTTTTGCT	6120
TGTCTACTAC TTGAAGCAAT CCTCTGACA CCTTCTCTTG AAAAGGAGTT AATTGGCCGC	6180
GCCATTTGAG AACATCTTGC TTTGGAAAAT CCTCCTCGCG AAAATAGTAT AAAGTTTGAT	6240
CACTTCTGAC TCGCTTCATC AGCAAGCACT CTCGACAATA GTAAGCACCG ATGGGCAAT	6300
ACCATTCTTC TAGAATAGTA CTATTACAGC GTTGACAGAA AAGTTTCCCC TTCTCCTTTC	6360

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TCATTGCTGG AAGTTTCTCC GCCAACTGAC GTTCTTCTTC TGTTAATTCA TTCTCAGTAA	6420
ATAAACGACC GAGATAATCT AAATTTACTT TCATACTTCT TTATTCGTAA AAAC TAGCAC	6480
TTTAGATGAT TTTT TAGTAC AATTAAATCA TGGAATTTAG GACAATTAAG GAGGACGGTC	6540
AAGTCCAAGA AGAAATCAAA AAATCTCGCT TTATCTGCCA TGCCAAGCGT GTTTATAGCG	6600
AAGAAGAGGC TCGTGACTTC ATTACTGCCA TCAAAAAAGA AACTACAAA GCGACACATA	6660
ACTGCTCTGC CTTTATTATT GGAGAACGTA GTGAAATTAA ACGTACAAGT GATGATGGTG	6720
AGCCTAGTGG TACTGCTGGT GTTCCCATGC TTGGGGTACT AGAAAAATCAC AATCTCACCA	6780
ATGTCTGTGT GGTCTGACA CGCTACTTTG GTGGTATTAA ACTAGGCGCT GGAGGACTAA	6840
TTCTGTCTTA CGCCGGCAGT GTCGCCTTAG CTGTCAAAGA AATTGGTATT ATTGAAATAA	6900
AAGAACAGGC TGGCATTGCT ATTCAAATGT CTTATGCTCA GTACCAAGAG TACAGTAACT	6960
TCCTTAAAGA ACATGGTCTC ATGGAGCTGG ATACAAACTT TACAGATCAA GTCGATACGA	7020
TGATTTATGT TGATAAGAA GAAAAAGAAA CTATTAAAGC TGCACCTGTG GAGTTTTTTA	7080
ATGGAAAAGT CACTTTAACT GACCAAGGTT TACGAGAGGT TGAAGTTCCT GTAAACTTAG	7140
TGTAAACAAT GAATAATACA GCGTTTCGTT GACATTCTCA CAACTACTTT AGCGAGCAAA	7200
ATAAAAAGAG CCGTACCAAA ATATACTAGA AAATGAAGCA ATTCAAACGA AACCTGATAT	7260
CGTTTTCTTT CACACCTATT TACTAGAATT AGCTGAACGC AATCACTTGA AAATTAATGA	7320
CTTTGATCTA TGATATATAG AAATGGTATG GATAGCGTTA TACTAAAGAT ATCTTATACA	7380
AAGAGGTATT CATATGTCTA TTTATAACAA CATTACTGAA TTAATCGGTC AAACACCGAT	7440
TGTTAAACTT AACAAATCG TGCCAGAAGG TGCTGCAGAC GTCTATATAA AGCTTGAAGC	7500
ATTTAATCCT GGTTCATCTG TAAAAGACCG TATTGCCCTT AGCATGATTG AAAAAGCTGA	7560
ACAAGATGGT ATTCTGAAAC CTGGTTCTAC TATTGTTGAA GCAACAAGTG GAAACACCGG	7620
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AACTATGAGT GTAGAACGAC GTAAAATTAT CCAAGCTTAT GGTGCTGAAC TCGTCCTAAC	7740
TCCTGGTAGC GAGGGAATGA AAGGTGCTAT TGCTAAGGCT CAAGAAATCG CTGCTGAACG	7800
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AACAGGAGCT GAGATACTAG CTGCTTTCGG TAAAGATGGA TTAGATGCCT TTGTTGCTGG	7920
AGTAGGTAAT GGTGGAACGA TTTCTGGTGT TTCTCATGCA CTCAAATCAG AAAATTCTAA	7980
CATTCAAGTT TTTGCAGTAG AAGCAGATGA ATCTGCTATT CTATCTGGTG AAAAACCTGG	8040
TCCTCACAAA ATTCAAGGTA TCTCAGCTGG ATTTATTCCT GATACACTTG ATACTAAAGC	8100

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CTATGATGGT ATCGTTCGTG TAACATCAGA TGACGCTCTT GCACTCGGAC GTGAAATTGG	8160
TGGAAAAGAA GGCTTCCTTG TAGGGATTTC CTCAGCTGCA GCTATCTACG GAGCCATCGA	8220
GGTTGCCAAA AAATTAGGTA CAGGTAAAAA AGTCCTTGCC CTAGCACCAG ATAACGGTGA	8280
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TTCTTGTA CA ACTTTAGTCC ATGGTAAATA GGCCTCTAAA ACCTCTTTGT TTACGAGAGT	8460
TTCCACGTTT GGAAGACATT CTAGAAGATA GGATAGATAT TTCTCACTAT TTATAATGGA	8520
TTGAAATAAG ATATGAACAA ATCGATTAGA ACATGATGGT AAAGCGTAAT CCCTTGTTTC	8580
TCAGCTTTCC CAGACAAAAA AGTCCAATAG TAAGTCAGCT GACTATCACT CTCTAGCACC	8640
CTATAAGAAG TTTCATCCGC ATGAAGTAAG GGCTGAGTCA ATAGTCTCTC TCGCAAGAGG	8700
TTATAAAGGG GCTCCAAATA GTATTGACTC GTCTTGATAT GCCAATTAGA GATTTCTTA	8760
CGTGTGATTG GTAAACCCAT CCTAGCCCAA TCTTCTTCTT GCGGATAATT GGGTACCTTC	8820
AGATTAAACT TCTGATGGAT GGTGTGAGCG ATAATAGAAG CTGAGCCAAA GTTATGCGCT	8880
AAAGGGGCTT TAGGAATAGG AGCTTTCACA AGCTTATCCA GATGATTATC TTTTACTCGT	8940
TATGGACAAT GCTATATGGC ATAAATCAAG TACCTTAAAG ATTCCGACTA ATATTGGCTT	9000
TGCATTATT CCTCCATACA CACCAGAGAT GAACCCCAT GAACAAGTGT GGAAGAGAT	9060
TCGTAAACGT GGATTTAAGA ATAAAGCCTT TCGAACTTTG GAAGATGTCA TACAAGGACT	9120
GCAGAAGGAG GTGATAAAGT CCATCGTTAA TCGGAGACGG ACTAGAATGC TTTTGA AAA	9180
CAGATGAGTA TAAAAAGAAA GTCCTCATTT CAATAGAAAT CACGACTTTC TGATGAATTT	9240
ATAGTAAAAT GAAATAAGAA CAGGATAGTC AAATCGATTT CTAAACAATGT TTTAGAAGCA	9300
GAGGTGTACT ATTCTAGTTT AAATCCACTA TATTTGGGGA GTGATAGAAA AGCCCTTCAT	9360
CAGCCAATCT ACTTGTTTCA GTGCGAGAGC TTTGACATCC TTTTCTGTAC TGGACCAAGT	9420
CAGTTTTCCTG TTCTCAAAGC GTTTATATAA TATCCAAAAT CCTTGACCAT CCCAGTAAAG	9480
AACTTTAAAG CGGTCTTTAC GTCCACCACA AAAGAGAAAG ACTTGATCGG AGAAAGGATC	9540
CAATTCAAAG TGGGTTTAA CTACATAGGC TAATGAGTCT ATTCCCTGCC TCATATCTGT	9600
CTTGCCACAA ACAAGGTGAA CTGACCTAA ATCACTTAGT TGAATTATCA TAGTACAATA	9660
CCTTTCCTCC GATAATTATT TTTTATCTGG TATACTGGAA GTTGGGGAAT TAGGATAGAT	9720
ACCTTGTTAT GACGCGCTTA CTATGAATTT GAAGTATAGT CTCCTAAATG CACTTAGCCC	9780
TTATTATAGG GCTTTTGTG TTAATTATTC TAATCGAGTG AGACTGGGGA AAAACAATT	9840
TCAGGAAAAA TCTAAGCCCT ATACAAAAAA GGAAGCAATT TGCTTCCTTT CTATTATTAG	9900

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TTATTCAAGG CTGCTGCCAT TGTAGCTGCA ACTTCAGCTT CGAAGTCGTT TGCAGCTTTC	9960
TCGATACCTT CACCAACTTC AAAGCGAGCA AACTCAACTA CCGAAGCGTT AACTGATTCA	10020
AGGTATGCTT CAACTGTCTT GCTGTCATCC ATGATGTAAA CTTGTGCAAG AAGTGTGTAA	10080
GCTTGGTCAA CTTTAGTGTT ATCAAGCATG AAGCGATCCA TTTTACCTGG AATAATTTTG	10140
TCCCAGATTT TTTCTGGTTT GCCTTCTGCA GCCAATTCAG CTTTGATGTC AGCTTCAGCT	10200
<hr/>	
TGAGCAATAA CATCATCAGT TAATTGAGCT TTTGATCCAT ACTTCAAGTG TGGAAGAGCT	10260
GGTTTATTAA CCATTGCACG GCTTTCGTTG TCTTGGTCGA TAACGTGATT CAATTGTGCC	10320
AACTCATCTT TAACGAATTG CTCATCCAAT TCTTTGTAAG AAAGAACTGT TGGTTTCATC	10380
GCTGCGATGT GCATTGACAA TTGTTTAGCA AGTGCTTCGT CTCCACCTTC AACAACTGAA	10440
ATAACACCGA TACGTCCACC GTTAIGTTGG TATGCTCAA AGTGTGTGC GTCTGTTTTT	10500
TCAATCAATG CAAAGCGACG GAATGAGATT TTCTCTCCGA TAGTTGCTGT TGCAGATACG	10560
TATGCAGCTT CAAGAGTTTC ACCTGAAGGC ATTATCAAAG CAAGAGCTTC TTCGTTGTTA	10620
GCAGGTTTTT CTTCAGCAAT GACTTTAGCT GTAGTATTTA CCAATTCAAC GAATTGAGCG	10680
TTTTTTGCAA CGAAGTCAGT TTCAGCGTTT ACTTCAATAA CTGCTGCAAC ATTACCGTTA	10740
ACATAAACAC CAGTCAAACC TTCTGCAGCA ACACGGTCAG CTTTCTTAGC TGCCTTAGCC	10800
ATACCTTTTT CACGAAGCAA TTCAATCGCT TTTTCGATGT CACCGTCTGT TTCTACAAGC	10860
GCTTTTTTAG CGTCCATAAC ACCGGCACCA GATTTTTCAC GCAACTCTTT TACAAGTTTA	10920
GCTGTAATTT CTGCCATTTT AATTCTCCTA TATTTTTTGA AAATAGGAGA GCCCGGCTAA	10980
GCCCCGCCTC CGG	10993

## (2) INFORMATION FOR SEQ ID NO: 16:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 8411 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 16:

CGACGGGGAG GTTTGGCACC TCGATGTCGG CTCGTCGCAT CCTGGGGCTG TAGTCGGTCC	60
CAAGGGTTGG GCTGTTCCGC CATTAAAGCG GCACGCGAGC TGGGTTTACA ACGTCGTGAG	120
ACAGTTCGGT CCCTATCCGT CGCGGGCGTA GGAAATTTGA GAGGATCTGC TCCTAGTACG	180
AGAGGACCAG AGTGGACTTA CCGCTGGTGT ACCAGTTGTC TTGCCAAAGG CATCGCTGGG	240

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TAGCTATGTA	GGGAAGGGAT	AAACGCTGAA	AGCATCTAAG	TGTGAAACCC	ACCTCAAGAT	300
GAGATTTCCC	ATGATTATAT	ATCAGTAAGA	GCCCTGAGAG	ATGATCAGGT	AGATAGGTTA	360
GAAGTGGAAG	TGTGGCGACA	CATGTAGCGG	ACTAATACTA	ATAGCTCGAG	GACTTATCCA	420
AAGTAACTGA	GAATATGAAA	GCGAACGGTT	TTCTTAAATT	GAATAGATAT	TCAATTTTGA	480
GTAGGTATTA	CTCAGAGTTA	AGTGACGATA	GCCTAGGAGA	TACACCTGTA	CCCATGCCGA	540
ACACAGAAGT	TAAGCCCTAG	AACGCCGGAA	GTAGTTGGGG	GTTGCCCCCT	GTGAGATAGG	600
GAAGTCGCTT	AGCTTTAATC	CGCCATAGCT	CAGTTGGTAG	TAGCGCATGA	CTGTTAATCA	660
TGATGTCGTA	GGTTCGAGTC	CTACTGGCGG	AGTAATCGAT	AAAAGGGaAC	ACAGCTGTGT	720
TCCTCTTTTT	GTATCAATTT	GTATCACCAA	GCATTTTCAT	AAGGAAGTCT	GTTATTTCCT	780
GAGAACTTTC	TTTTTTTCCA	TGTGCAATCC	AAGTTTGCA	GACACCAAAA	AGTGCATGAG	840
TTAGATAGAT	GCTACTATAT	TCTAATTCAG	TGGTATTTAG	ATTCAGTTGC	ATAAATCGCT	900
TTTGTAATC	TGTACTAAGC	ATGATATGAA	GTTTATTTTCG	TAAGAAATTT	TGGATTTCCT	960
TAGTCCCAT	TTCAGAAAGA	AGGGCAGCCA	GAAGTGGTTC	TGACTCTAGA	TATTCAAAAA	1020
CTTCTAAAAT	AGCGTCTCTT	TTGTGATGAG	CATGTTTTTG	AAAAATATAT	TCAAATGTAT	1080
GGAATAGCTT	GCTTTGATAG	TGCTCAATCA	TATCATACTT	ATCCTTATAG	TGAGTATAGA	1140
AGCTGGAACG	ACTAATTCGG	GCTTTTTCTA	CTAATTTGAC	AGTAGAAATT	TTATCAAATG	1200
GCTGTTCCAT	CAGTAATTGT	ACCATAGCAT	TTTCAATAGT	TCGCTTTGTT	TTTAAGCGTT	1260
TGTTACTTTC	TTGCATATTT	CCTCCTTGTA	AACAAATTAG	ACTATATGTC	TAAAAATAGA	1320
TTTTTTATCT	TGTAATTTAG	ATTTTTTAAT	GTATAATCTA	TTATATCAAA	ATTTTAGACA	1380
ATATGTTTAA	AAAAGGAGAA	ACTAAGTTTA	AAGAATGGA	AGCAATTTAA	AAAAAACCAA	1440
CCTTTATTAT	TGTCATGATC	GGGATTTCTC	TTATTCCAGA	TCTGTACAAT	ATCATATTTT	1500
TGTCATCAAT	GTGGGATCCA	TATGGGCAAT	TGTCTGACTT	ACCTGTGGCA	GTTGTAAATA	1560
ATGATAAAGA	GGCTTCCTAT	AATGGTAATA	CTATGGCAAT	AGGAAAAGAC	ATGGTGTTCA	1620
ATTTAAAGA	AAATAAAACC	TTGGATTTTC	ATTTTGTAGA	TGAAGAGGAA	GGAAAGAAGG	1680
GATTGGAAGA	TGGCGATTAC	TATATGGTAG	TGACTTTACC	AAGTGATTTA	TCTGAAAAAA	1740
CAACTACATT	ATCCAATATT	CAATCGACAG	CAGCTTATCA	ATCATTGACA	AGTGAGCAAC	1800
AAACTGAGAT	AAGTGATTCT	GATCTCAAAA	ATTCAACTGA	TAGTATTCAA	TGGGCTCAGT	1860
CAATTGTAGC	TTTAGTACAA	GATTTACAGG	GAAGTTTAGA	AACTTACAA	AATCAATCTT	1920
CTAATCTTTC	GACTTTAAAA	AATCAATCTA	ATCAAGTATC	ACCTATTACT	TCTACTTCTT	1980
TGATAGGATT	GTCAAGTGGA	TTAACAGAGA	TACAAGGAGA	TGTTACTAGC	AAATTAGTTC	2040

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CTGCCAGTCA GTCGATTGCA TCAGGTGTAA ACGCATATAC TACAGGTGTT GATAAAGTTT	2100
CTCAGGGCGC AAGTCAACTA AGTGAAAAAA ATGCCACCTT GACAGGTAGT TTGGATAAAC	2150
TAGTTTCAGG CTCAAACACC TTGACACAAA AATCTTCTAG ATTGACAGCA GGAGTTGGTT	2220
AATTACAATC AGGATCTGGG CAATTAGCAG ACAAATCCAG TCAGTTACTT TCAGGTGCTT	2280
CTCCATTAGA GAATAGAGCT AATAAATTGG CAGATGGATC TGGGAAACTA GCAGAAGGTG	2340
GAACAAAGTT AACTTCTGGA TTGGAAGATT TACAGACAGG ACTTGCTTCT TTAGGACAAG	2400
GACTAGGTAA TGCTAGTGAT CAACTCAAAT CAGTATCAAC AGAATCTAAA AATGCAGAGA	2460
TTTTGTCAAA TCCACTCAAT CTTTCAAAAA CAGACAATGA TCAAGTTCCT GTAAATGGAA	2520
TCGCAATAGC TCCTTATATG ATATCAGTTG CTCTTTTTTT GCAGCAATAT CAACAAATAT	2580
GATATTTGCG AAATTGCCTT CAGGACGTCA TCCAGAGAGC CGTTGGGCTT GGTGAAATC	2640
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TCAGCTTATT GGTTTAACTG CTAATCATGA GATGAGAATA TTTATTCTCA TCATCCTAAC	2760
AAGTTTAGTA TTCATGTCTA TGGTGACCAC TTTAGCAACG TGGAAATAGCC GTATAGGAGC	2820
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AATCGACCGA TTAAGTGGTC GATTTTTTAT GCCTTAGATG ACTTTCGTCT GTGATTATAG	3120
ATTCCAAATA GTAAGAGAGA AGTAAAGGAA CAGATTGCTC CAGTAATAAA ACCATTGGGA	3180
TTAGCTTGGT TAATTTCTAT TTTCTTACCA TCTTGGTAGG CAGACCAACC TTTGTCATAA	3240
GGAATGGTGA AGAAAATAGA TGTATCTTGT TGGACATCAT ATGTAGCAAA AACCTTGTTT	3300
TTAGAAGTTG ATACTGTGAC AGGTGTCTCT TTAATTTTTT GAATTGCCTC GGTGAAAGTT	3420
TTGGTATCTA AACGATAGAA GGTAGGAGAT TCAAATGATA CTTGTGAATT TCCAGGGAAA	3480
CTAACATTGA TATTGAAAGT TTTTTTCTCT TTAGTATATC CTAGATTAAA GAAGGAGAAG	3540
ACATTATCAG TTGTAAAAGT CTTTTTTTCA CCATTTACAA GGATGTCAAC CTTCTTTTGT	3600
TTATCGTTAG AAAAGTGAAG GTTTATGAAA GAGAGATAAA CTTGGCTGTT TTCTGGAAC	3660
TCAATTTGAT ACTGGATTGC TGCATCTTCA TTTGAAGAAC TTGTGACACT AATCAAATCA	3720
TTAGTATTTT CTATTTTTTC TGTTTTTTCA TAAGGTATTG GAGAAAAATA ATCAAATTG	3780



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ACGTTAGCAA GTTGATTAA AAATGAGGCC TGATTATCCA AGGTATCTTC ATTGAACTTG	3840
ACATCATTGT AAACAGATTG ACTCGCAACT GCAATCGGAA GAGAGTATTG ATTTTCATAT	3900
AGGGTAAGAT TATCTTTTGG ATAGATATCT TTAAAGCCAT ACTTATCAAT AGGACTGTCT	3960
GAGATATTGT ACTGGATACC AAATAAACTA TCAGCCAAAA TACTATTATT TGCATATCGG	4020
AGATTGAGAT TAGTCCCAGA GGATTTAAAA CCAAGTTTAT CTAAAGTAGA GCTTGATGAA	4080
CGATTTGCGAA CAGATGAAAA TTGAGAGATT CCATTGTAGT TGAATTTTCAT ACTGTCATT	4140
CCTGTCTGAG TTTGTAGTTT TTCAGTACGA GTAAATTGAT TTCCAATATA TGTGAGAAAA	4200
GATTCCATAG CTGGGATATC TCGACTATAA GCACTTCGAG AAGCAAATCC CCATTCCTTA	4260
GCAATTCCGT CCATTTGAGA TGAAGCATTT AAACCTCATTT CAACCAGTAT AAATAAAGAG	4320
ATTAGAAATGG CAAATAGATT CACAGATATA AACTTTTTGA TAACTGCAAG GAGTAAAAGA	4380
GAATAGACAA CCAAAAAATTC AAGAGTAAGC AGAATATTCA AATCTGTTAA AAAAGAATAA	4440
TGCGATTTTA GATAGATGGT AGCTAAAAAT CCTGCTACTA CAAGAAAAAG CGAAACTAAA	4500
AAATTCAGTA CTTTAAGTTC TTTCAGACGC TTTAAGACTT CTGCTGCTGT GTAAATTAAC	4560
AAGGTAGAGA AAATCCAAGC ATAGCGATGT AAAAACATGT TTGGAGTATG CATGCCTTGC	4620
CAAAATAAGT CAAGAGCTTC TATGTAAAAG CTGCAATTA GAAATGCAAA GAATATTACA	4680
TATATGAGTT TCACGTGAAA CTTAATAGAT TTCAGCGTAA AAAATAAAAT GGTCAAAATA	4740
AAGGGAAATA GTCCAACAAA AATCATTGGG ATGGCCCCAT ACTTTGTTGT GTCAAAGGAA	4800
CCAATGAATT GCTTAGCAAA GAGATCAAGA TACCAGCTAC TTTCAGTTTG AAACTTTGTA	4860
ACTTCAGTCA ATTTTCCCCC ATGTGTCTGT AAATCAAATA GAGTGGGAAG AGTCATAATC	4920
AAACTAGCCA TACCAGCTAA AAAGCAGATA ACTATGAAAT CAAGAACAGA TGATTTTCGA	4980
GTCTTAAAGT CCCACGAAAT TTGACAGAGA TACCAGAAAA TAAGAAACAA TACTGTCATA	5040
TATCCAAAAT AATAATTTTG AATAAATAAG ATTGACAGAC TTGTAAAGTA CAATAGGAGT	5100
TTCTTTTCAG TTATCAGTAG ATGTAAACCA GTTATAATTA AAGGAATCAA GATAAAAACA	5160
TCTAGCCAGG TTTTATCTC TAATTGACTG ACAGTGAAAC TCATCAGAGC ATAGGAAGTA	5220
GATAAGGCTA GTTTTAAAAAT CTGAGGGATA GATTGAAACA ATTTATTCAA ACTAAAAAAG	5280
GTTGACAGAC CAATCAATCC AAATTTTAAG AGAGTTGTCA GATAGATAGC ATCTGGCATA	5340
TTCGTTAGAT CAAAAAAGTA AACCAGAGGC GCGAGAAAAC TACCCAAGTA ATAAC TAGAT	5400
AGGGCATAGA AGTTTAGCCC TAGACCACTT GTAAAGGTGT AAAACAGATT ACTATTTCCA	5460
TGTAGGATAT TTCGTAAGGC TACATCAAAA ATAACGTATT GATGAAAGCC ATCTCCTAAT	5520
AGAGGAGACT TGTCGCTATT CCAGTAGATA CTTTGAGATA GATATACTCC AGACATAATC	5580

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ACTACAGGAA TGATGAAAGA AATAAAATAG GTTCGATATG TTTTAAAAA TGATTTCATG	5640
TTACCTCGTA GAATGATAGA AAACTCAGTT GGTAAACCCA ACTGAGTTT GAAGTTTAT	5700
TTAGTCTTTC CAAAGTTCTT TAACTTTTCG TTGTACTTCT GCATTTTCTA GGAATTCATC	5760
GTAGGTTTCA TCGATACGGT CAATGACGCC ATTTTATAGT AAGACAATGA TATGGTTAGC	5820
CAAAGTTTGA ATAAATTCGT GGTTCATGGCT GGCAAAGATG ATTGATTCTT TAAAGTTTTT	5880
CAATCCATCA TTCAAGCTTG AGATAGATTC CAAGTCCAAG TGATTTGTTG GATCATCAAG	5940
TACAAGGACA TTTGATTTTA AGAGCATGAG TTTTGAAAGC ATGACACGAA CTTTTCTCC	6000
CCCTGACAAG ACATTTACAG GTTTGTTAAC TTCATCTCCA GAGAAGAGCA TACGGCCGAG	6060
GAAGCCACGT AGGAAAGTAT TGTCATCTTC TTCTTTACTT GCGAATTGAC GCAACCAGTC	6120
AAGAATTGAT TCTCCTCCTG CAAAATCAGC TGAGTTATCT TTTGGTAGGT AAGATTGACT	6180
AGTTGTAACT CCCCACCTGA CAGTTCCTTC ATAGTCAATA TCTCCCATGA TTGCACGAAT	6240
TAATGCAGTC GTTTGAATAT CATTTGTCC AATAAGTGCT GTCTTATCAT CTGGACGCAA	6300
GATGAAACTA ATATTATCCA AGATAGTTTC ACCATCAATC TTTACAGTTA AATTTTCTAC	6360
TGTCAAGAGA TCATTACCAA TCTCAGTTC CGCTTTAAAG TTGATAAATG GATATTTACG	6420
ACTAGATGGC ACAATCTCTT CTAGCTCAAT CTTATCAAGC ATTCTCTTAC GTGATGTTGC	6480
CTGCCTTGAC TTAGAAGCAT TGGCAGAGAA ACGAGCAACA AATTCTTGCA ATTGTTTAAAT	6540
TTTTCTTCT GCTTTAGCAT TACCGTCTGC TAGCAATTTA GCAGCAAGCT CAGAAGATTC	6600
CTTCCAGAAG TCGTAGTTTC CGACATAGAG TTTGATTTT CCAAAGTCAA GGTCCGCCAT	6660
GTGAGTACAA ACTTTGTTTA AGAAGTGACG GTCGTGGGAT ACTACGATAA CTGTGTTATC	6720
AAAGTCAATC AAGAACTT TACCAAGT ATGCAATTC ATTTTCTTAC CTTAGTAGG	6780
CTCGTCCAAG AGAAGAACAT CTGGTTTACC AAAAAGTGCT TTGGCGAGGA GAACCTTTAC	6840
TTTTTCACCG TTGGCCAATT CGCTCATGTT TTGGTAGTGT AATTCTTCTG GAATGTTTAG	6900
GTTTTGAAGT AGTTGAGAGG CTTCACTCTC TCCTTCCCAA CCTCCAAGTT CGGCAAACCTC	6960
TCCTTCGAGT TCGGCAGCAC GAACCCCGTC CTCGTCTGAG AAATCTTCCT TCATGTAGAT	7020
AGCATCTTTC TCTTTCATGA TGCTATAAAG TTTTTCATTT CCCATGATAA CGACATCAAT	7080
GGCACGTTCA TCTTCGTAGT CAAAGTGATT TTGACGAAGA ACAGAGAGAC GTTCATCTGG	7140
ACCAAGAGAG ATGTGACCAG TAGTAGGTTT GATATCTCCA GCTAAAATTT TAAAAAAGGT	7200
TGATTTTCCG GCACCATTAG CACCGATTAA TCCGTAAGTA TTTCCTTCTG TAAATTTGAT	7260
ATTGACATCA TCAAAAAGTT TGCGATCACT AAAACGTAGT GAAACATCAG ATACTGTAAG	7320

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CAATGTTTT CTCCTATATG TGTAATATAT TTATTCTACT AGAAAATACA GAAATATTCA	7380
AATTTTTATT TGTCAATTTT GTGTAAATTA TATTTACAGT ATCCTTTACA CAAATCTGTA	7440
AAAAGCAAGG CTGATTTATT TTGATAAATT ACGGTATTTT CATTAAAAAA ATGCTATAAT	7500
TGAAAGGACT ATATCGAAGG AGAACAAAAT GACTAAACCC ATTATTTTAA CAGGAGACCG	7560
TCCAACAGGA AAATTGCATA TTGGACATTA TGTGGGAAGT CTCAAAAATC GAGTATTATT	7620
ACAGGAAGAG GATAAGTATG ATATGTTTGT GTTCTTGGCT GACCAACAAG CCTTGACAGA	7680
TCATGCCAAA GATCCTCAAA CCATTGTAGA GTCTATCGGA AATGTGGCTT TGGATTATCT	7740
TGCAGTTGGA TTGGATCCAA ATAAGTCAAC TATTTTATT CAAAGCCAGA TTCCAGAGTT	7800
GGCTGAGTTG TCTATGTATT ATATGAATCT AGTTTCGTTA GCACGTTTGG AGCGAAATCC	7860
AACAGTCAAG ACAGAGATTT CTCAGAAAGG ATTTGGAGAA AGCATTCCTG CAGGATTCTT	7920
GGTCTATCCA ATCGCTCAAG CAGCTGATAT CACAGCTTTC AAGGCTAATT ATGTTCTGT	7980
TGGGACAGAT CAGAAACCAA TGATTGAGCA AACTCGTGAA ATTGTTCTGT CTTTAAACAA	8040
TGCATATAAC TGTGATGTCT TGGTAGAGCC GGAAGGTATT TATCCAGAAA ATGAGAGAGC	8100
AGGGCGTTTG CCTGGTTTAG ATGGAATGC TAAATGTCT AAATCACTAA ATAATGGTAT	8160
TTATTTAGCT GATGATGCGG ATACTTTGCG TAAAAAAGTA ATGAGTATGT ATACAGATCC	8220
AGATCATATC CGCGTTGAGG ATCCAGGTAA GATTGAGGGA AATATGGTTT TCCATTATCT	8280
AGATGTTTTT GGTCTCCAG AAGATGCTCA AGAAATTGCT GATATGAAAG AACGTTATCA	8340
ACGAGGTGGT CTTGGTGATG TGAAGACCAA GCGTTATCTA CTTGAAATAT TAGAACGTGA	8400
ACTGGGTCCG G	8411

## (2) INFORMATION FOR SEQ ID NO: 17:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 9064 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 17:

TGCCGTACTC AAGTACAGCC TGCCTAAGT TTCCTAGTTT GCTCTTGAT TTTCATTGAG	60
TATTAGTAAC CAAAATCCGA CCACATAGCC AGCCCCTATG AATATAGCCA TTAAAGCTAG	120
CATGGAATTT AGGAAATTAA AAACCACCGC AGATACAAAG GTTAGCACAA AAACATTAAA	180
AGCAATGGTG TCAGAAGCCA AGACTAGAAT ATAGGGTGTC AACCGATCTA AAGTTTGGGA	240
ATCTAGGAAA AATAAGTGT TATACATGAT GACCTCCTCT ATGGCTGAAA AGCAAGCCTT	300

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TTGTTTTTTT	ACCCCAAGAC	CCTATGTAGA	AAAGTGAGCA	AAAACGGGAA	GGTCGCTACA	360
ATATTATTGA	TCACATGCAC	CGCATAGGAT	GGATAAATGC	TCTTGCTATA	GCGGGTCAAA	420
CCAGCAAAGA	TGATTCCAAC	TGTTGCAAAG	ACGAAGATAT	CTAACAGACT	AGGCAGGCTT	480
GAAAAATGAG	GGAGAGCAAA	TAAAATAGAA	GGAAGAAGCA	AATCAAGACC	AAATCGCGAA	540
TGCTTAAAGA	AAGCATGTTG	CAGTAATCCT	CTATAAATCA	ATTCTTCCAT	CAGTGAAGCC	600
AGAAAGAACA	GGGCTATATA	AATACCTAGC	TCTGCAAAGT	TAGTCCCACT	ATAACCAATC	660
AATACAGCCC	AACCTTCCGC	AGTTGACTGA	ACATGTTTAG	CTGTCTGAAC	GTTAAAAGAG	720
ATCTGGAACA	CTAGCACTAA	TACTGTCAAA	ATCGAATACC	AAAGCCATTT	TTTTCTTGGA	780
ATGCGGAAGA	GATAACCATG	GCCTGTCTTA	ACAAGAACCA	CAATCATGAC	TCCAATAAAA	840
AGTAACTCA	AGATATTTTG	AATCCAGAAT	AAATTGCCTA	TCTGAGAAGA	AAATTGCCAA	900
TAGTTTGGGA	CGATAAGCGT	CAGCTGAGAA	AGACTAAATA	CGAAAAATAA	GTAAGAGAAG	960
ACTGCACTTA	TTTTGAATAG	AAGTTGATAC	TTTTTCATAG	AAATCCTCCC	TACTATGACC	1020
TCACCTTGTC	AGGCTCTACT	GCTGTAAGAT	TAAGAAGACA	GTTTGTTTTT	TTTAAGGCTA	1080
ACCTGACTAC	TAGATAATAG	ATACATTAAG	GCATTAAAGA	CAATGAAAAT	ATGTCCATAG	1140
AATAAAATCA	ACCTCGCATC	CAAACCAAGA	TAAAGTTTGA	TTATCAAAAA	GATGAGCAAA	1200
AGAATTTGAA	ACCATAAGGT	TTTTCCAAAA	ATAAATTTAA	AGCGATTTGG	AATATCTACT	1260
TCCTTGATTT	TTACCGCCAC	CCCTTTATTA	GCAAGAAGGA	AAACTCCTGC	TTCAAACAAA	1320
CCACTGTAAA	GAACAAGCCA	CCCAATAGAT	ACGATAGAGA	TTTGTA AAAA	TGTCCCTAAA	1380
AGAATATCCA	ACACACTACT	CAAGAAAATA	ACAAAAAATA	ATCTGTATTT	CATATTAAAT	1440
ACCTCCATTC	ATTTATTTCA	CTAACAATTT	AATAGAGCCT	TCTACTCAAA	TATCCTGTCA	1500
GAAAAGGATA	GAAAGCTACT	TTTTATAATA	CTTCAAGCCC	CACATGAGCA	GAAGCGTGAT	1560
AAACAAGCAG	AGAATACACC	TATATAAGCG	ATTAGTTGTT	GATAGAATTC	TGTTTCTGAA	1620
ATACCTCTAT	ACAAACAAAT	GACAAACATA	AAATCTGCCA	AGCCGATAAA	CATAAGTTGA	1680
TTGGTTCTAG	GACTAACCAA	ATCATCATTT	ACTTATATTT	AAGAGTATCT	CTTTTATTTT	1740
AATGTATGTT	AGCACTGAAA	AGCAAGACAG	GCCAATAATA	TTTAAATGA	ACAGTAACGG	1800
GGTTAAGTCT	CTAAAAAAT	TATCTACTGA	CACTACAAGA	AATACTATAC	ATATTATAGT	1860
CGAAACTATC	TTTTTCTTAT	CCATAATTAT	TTACTCCTTT	CCTAACAAAT	CCAGCTTATC	1920
AATCAAGAGC	GATTTTAAAC	ATAATGTAGC	AGCACCCTGT	GCAACTTTGA	CAAGTTTAGT	1980
ATATCATTGT	TTTTTAAAT	TTTTCATCCA	AATCTTGAAT	TGTCATCGAA	ACATCTTGAA	2040

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TTGTTAAAAA ATTTAAAAAG TAAGCATTA	AAACATACTT TCCTCTTTAT ATTGTATTGA	2100
TACCAACTTG TTTGTAGACT TTTTCATCCTG	CTATCACATA TCATTTTGAC AGGCGAAACA	2160
ATATTAAAGA AACTCCCTG TAAATTAAGC	TAGCAAATAC AGGGGAGAAA TTTATTTTTT	2220
AGAGAGTACT ATCCGTATCC TTTTTGGAAG	ATTTTGAAAA TATTTTCTA ATTAAGTCAT	2280
CCATATAAGG ACCAAATATA CCAACTACTA	AACCAATAAT AAAACTTTTA AAATCCATAA	2340
TTACCACCAA CATATTGCTG CATAGGCTAC	ACCTCCAAGT ATAGCTCCAC CTGCAGCACC	2400
AGTTACACCT ATTCCTATAG CAAATGGTCC	CAATAGAAAT GTCAAACCGT TGTTCACAC	2460
CCATCAATTG CGCCATATGC AACCCCTGCT	GCACAATAA TTTTCTTCC CCAATCAATA	2520
TCTCCACCTT CAACGCAAGC AAGCATTTC	TTATCCATAA CTGCAAATTG TGACATCAT	2580
TTTGTATCCA TATAGTGTAT CACTTTTCAG	TTACGGAACA AGTTTAATAT AAAAATTATC	2640
AAAAAACAT AGGCAATAA GAGAAAAAT	AATTTATCAT AGATTAGAAA TAATATGACA	2700
AAACAATTCA ATGATGTAA TTCAATAGTC	TTTTGTTTT TATCGGAGAT ACTTATGGAT	2760
AGATAAATAA GATAGGTTT AAAAGCGAAG	AGAATAATAA AGAATATAGC CTTCATAAAA	2820
TTTAGCTTTC ATTTTATGA TGTAGCGTA	TAGGCTAAAT ATCCACAAAC CACTGCTCCT	2880
CCAATTCTC CTATTGCAGC GCCCCATGGT	CCTAGAAGTC TCCCATATTT CACTCCACCC	2940
GCTGCACAAC CTAAAGCAGC AACTACAGCT	GCTCCTCCGG AATTACCTCC ATAAACCTCA	3000
CTCAGCATTG TTTCATTTAT ATTACAATAA	GTATTCATAC AAGTCTCCTT TTATTAAAA	3060
CCACCCGTTG CCCCTGTTAC TCCTGCCCAA	AGATCCACAC CAAATTTAGC TCCTATGTAT	3120
CCACATGCTC CCATAAATGG TGCTCCAACA	CCACTCGCAG CACAAATAGC TGTCCCTAGC	3180
CCCCAGCCAC CAAAAGCAGC ACCACCACCT	TCTAAGACAT TAGTTTGCCA ATTATTCTTG	3240
CCTCCTTCAA TACTAGATAA CATAGTTATA	TCCATTTCAT GAAATTGTTT CATAATTTTT	3300
GTATCCATGA CAAATACTCT TTTTATTTT	TAATTTTGT CTTGTTGTAA CTTTGACAA	3360
TTTAGTATAT CATCGTTTT TAAAATTTTT	CATCCAGATT TTGAATAGTC ATCGAAACGT	3420
CTTGAATTGC AAAAATTACA TTAGACTTCC	TGCAAAACTA GAATCCTAGT TCATGATTGA	3480
TAATACCAGC ACTCAAATTC ATTCGTAATC	CGAAGCGTTT ACGATGACTT CGATAGGTTG	3540
TTGAAAACAT TTAAACGTT TTTACTTTGG	CAAAGATGTT CTCAACCTTG CTTCTCTCCT	3600
TAGATAGCGC ATGGTTACAG GCTTTATCTT	CAACTGTTAG CGGTTTGAGT TTGCTGGATT	3660
TACGTGAAGT TTGTGCTTGA GGATATATCT	TCATGAGCCC TTGATAACCA CTGTCAGCCA	3720
AGATTTTACC AGCTTGTCGG ATATTTCTGC	GACTCATTTT GAACAACCTC ATATCATGAC	3780
AATAGTTCAC AGTGATATCC AAAGAAACAA	TTCTCCCTTG ACTTGTGACA ATCGCTTGAG	3840

TCTTCATAGC GTGAAATTTC TTTTACCAG AATCATTCGC TAATCTTTT TTTAGGGCGA	3900
TTGATTTTTA CTTCGGTCGC ATCAATCATT ACCGTGTCCT CAGAACTGAG AGGAGTTCTT	3960
GAAATCGTAA CACCACCTTG AACAAAGAGTT ACTTCAACCC ATTGGCTCCG ACGGAGTAAG	4020
TTGCTTTCGT GAACACCAAA ATCAGCCGCA ATTTCTTCAT AAGTGGCGTA TTCTCGCACA	4080
TATTGAAGAG TGGCCATAAG AAGGTCTTCT AGGCTTAATT TAGGTTTTCG TCCACCTTTT	4140
GCCTGTTTAA GTTGATAAGC TGTTTTAAAT ACAGCTAGCA TCTCTTCAA AGTCGTGCGC	4200
TGAACACCAA CAAGACGCTT AAATCGTGCA TCAGTTAGTT GTTTACTTGC TTCATAATTC	4260
ATAGAACTAT AGTAAATGA AATAAGAACA GGATAAATCG ATCAGGACAG TCAAATCGAT	4320
TTCTAACAA GTTTTAGAAG TAGAGGCGTA CTATTCTAGT TTCAATCTAC TATACTATAC	4380
CATATTTTGT TTCGCAGGGA ATCTATTATA AAAGGGTAAG TATTGCAAAA AACTTACCC	4440
TTTTCTTTTA TACTTCATTA AGCTCTACTT TTTATAATAC TTCAAGCCCC ACATGAGCAG	4500
AAGCATGATG ATTAAGCAGA GAACAGCGCC AATATAAGCG ATTATTTGTT GGTAGGATTC	4560
TCCTGCTGTG ATACCTCTAT ACAACAAAT AATAGACATA AAACCTGTCA AGCCGATGAA	4620
CATAAGTTGA TTGGTTCTAG GACTAACCAA ATCATCATCT TCAAACCTCTC TTATCCTCAT	4680
TTCCCTAGTG AGATAAACAG TAACCAAAAT AGAAGCCAAG TTAATAACTA CTAAGAGAAA	4740
TTGGAAACT ACGGAAAAAT TTAAGAACTG ACGAGATAGA AATAGATAAG TAGAAACAAG	4800
CAAGGGCAAC TGACCTAAGA ACAATCTCGC AAGGAAGATG TTCCGTTTTT TAGCAAGAAA	4860
AGTTTTCAT TCTTTCTCC TTTCTTTTTA TTGATAGCAA AATAGATCAT AACTGCAATC	4920
ACATAGGCTA TGGTATAAAA TAGCTGATAC CAAGCACTCT CCCTAAGCGG ATATAGAAAG	4980
ATGGACATGA TTAGATACAG AACGAAAATA ATCAGTATTT TTTCTTCAT AAGATTTCTT	5040
CCTAAATGTG CGATTTATCT TAGTTGAGCA AGAACATTTA CACTGCTAGT ATAGCACTTA	5100
TTTGACCTT GGATCACTCA AATCATAAAT GGTATCAAA ACCTCTTGAA TTGTAAAAAT	5160
TAAAAAGCA AGCATGAAAA ACATACTTTC CTCTTTATAT TGTATTGATA CCAACTTCTT	5220
TGTAGACTTT TCATCCTGCT ATCAGATATC ATTTTGACAG GCGAAACAAT ATTAAAGAAA	5280
CTCCCTGTG AATTAAGCTA GCAAATACAG GGGAGAAAT TATTTTTTAG AGAGTACTAT	5340
CCGTATCCTT TTTGGAAGAT TTTGAAAATA TTTTCTAAT TAAGTCATCC ATATAAGGAC	5400
CAATATACC AACTACTAAA CCAATAATAA AACTTTTAAA ATCCATAATT ACCACCAACA	5460
TGTTGCTGCA TAGGCTACAC CTCCAAGTAT AGCTCCACCC GCAGCACCAG TTGCTGCACC	5520
TTGCCATGTT CCTGTTTTAA TGCCTAGTTG AAGACCTCTT GCTGCTCCTC CTCCAACACC	5580

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TGCTTTGGCA AAATCTCCCC AATTGCATCC GCCACCTTCA ACGCAAGCAA GCATTTTCAGT	5640
ATCCATAACA GAAAATTGTG ACATCATTTT TGTATCCATG ACAAATACTC CTTTTTTAAA	5700
AAACTAAAAT AAATCAGAAT AGAATCCTCA TAATTTTACT ATAAGTCTTA CCAACTTAGT	5760
CCCAATTTAT CACCAACCAT ACCTCCTAAG CATGTTAATC CACCCCAAT TGCACCAATG	5820
TGTGCTCCAA CAAATGCACC AGCAAGTCCA GCTACTCCTA AAGTGGCCAA ACCTGCTCCA	5880
GTTCCACCAG TTATAATTCC CGTAGTGACT CCTGTAATCA GTGCATTTTG ACAATCAGTG	5940
GAGCTATACC CCCCTTCAAC TTTCGCAAGC ATTTTCAGTAT CCATAACCTC TAACTGTGAC	6000
AACATTTTGT TATTCATGAT GAATACCTCC TTTTATTTT CAATTTGTTA CCAAAGTCTT	6060
AAATTCATA AACAAATAGA TTTTTATAG TATCTTTTG ATTTCTTAA AAAAGTATAT	6120
ACGTCTACTA TCTTCTAAA GGTAGCAGTA CCTATTTTT AGTCTAAGAT TTCAATAATC	6180
TTGAGTATCT AAAATATCTT AATTCGTGA TTCTCCTTGC AATAAAAAGT TTTACTATAC	6240
TATTTATTA CTTGCAGAAA GCAAAAAATA TTAGTAAATA ATAGTTTATA GTTAAGTTT	6300
TTATTCCTAC CAATCCATCA ACTAAGTAAA GCATCAACGA TTACATAAAC GATTGATAAT	6360
ATAATTAAAA TTTTGTAACT TATCTTATTC TCATCATTTCT TAGATAACTT TGATATTTTG	6420
TAAGTAAGTA AATAAGACAG TAAATTAATA GCGATAATAA TACTATATTT AAGAATCATA	6480
ATCTTACAAA GAGGACATAA TTCCTGAACC TACACAAATA AGTGTGTGCTG CTCCCCCAGT	6540
TATCGGACCA GTCGCAGCAG CTAATAGTAC TGCTCCAATA CAACCACCGA TTGCAGATCC	6600
TAAATTGCCT CTTCTCCAC TAACTATTTG GAGTCTTCA TTATCCATAA CAGAAAATTG	6660
TTCCATCATT TTTGTATTCA TGACAAATAC TCCTTTTTTC TTTTTTATT TTTGTCTGT	6720
TGTAACCTTG ATAAGTTTAG TATATCATCG TTTTTTAAA TTTTTCATCC AGATCTTGAA	6780
TTGTATCGA AACGTCTGA ATTAGCTTTT TTATTTCAAG CCACCTCTAA ATGTTTTAAA	6840
AAAATAATTT CTAATCACTT TTTTACCATT CAGGAAGTTT TAATGACTAT TCAAGATTT	6900
ATAAAATATG AACTTAGTTT TATGACATAA TAGACCTATC CACTATATGA AAGGAATTGC	6960
CAATGACTTC TTATAAACGT ACATTTGTTT CTCAAATAGA TGCGAGAGAC TGTGGTGTG	7020
CTGCCTTAGC CTCGATTGCT AAATCTATG GTTCAGATTT TTCTCTAGCT CACTTGAGAG	7080
AACTTGCAAA GACCAATAAA GAAGGGACGA CTGCTCTTGG CATTTGTAATA GCCGCTGATG	7140
AAATGGGCTT TGAAACAAGA CCTGTTCAAG CAGATAAAAC GCTCTTTGAC ATGAGTGATG	7200
TCCCCTATCC ATTTATCGT CACGTTAACA AAGAAGGAAA ACTCCAACAT TACTATGTTG	7260
TCTATCAAAC AAAGAAAGAC TATCTGATTA TTGGTGATCC TGACCCTTCT GTAAAAATCA	7320
CTAAAATGTC AAAAGAACGC TTTTCTATG AATGGACTGG AGTAGCTATT TTCTAGCTA	7380

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CCAAACCCAG CTATCAACCC CATAAAGATA AAAAGAATGG TCTACTAAGC AAGCTTCCTT	7440
CCTCTGATTT TCAAACAAAA ATCTCTCATT GCTTACATTG TTCTCTCAAG CTTATTGGTC	7500
ACTATTATCA ATATAGGTGG TTCTTACTAT CTCCAAGGAA TCTTGATGA ATACATTCCA	7560
AATCAGATGA AATCAACTTT AGGAATCATC TCAGTTGGTC TGGTTATCAC CTATATCCTC	7620
CAACAAGTCA TGAGCTTCTC CAGAGATTAT CTCCTAACCG TTCTGAGTCA GAGATTAAGT	7680
ATTGATGTGA TTTTATCCTA TATTCGCCAT ATTTTGAAC TTCCCATGTC TTCTTTTGGC	7740
ACACGTCGTA CAGGAGAAAT CATTTCACGA TTCACAGATG CTAACCTCTAT TATAGATGCC	7800
TTGGCTTCTA CCATTCTTTC TCTTTTCTG GATGTTTCTA TTCTGATTCT TGTAGGAGGC	7860
GTCTTACTGG CACAAAACCC TAATCTCTTC CTCTTTCTC TTATTTCCAT TCCTATATAC	7920
ATGTTTCATCA TCTTTCTTT TATGAAACCT TTCGAAAAA TGAACCATGA TGTCATGCAA	7980
AGTAATTCTA TGGTTAGCTC TGCCATTATC GAAGATATCA ACGGGATTGA AACTATAAAG	8040
TCGCTCACGA GTGAACAAAA TCGCTATCAA AATATAGACA GCCAATTGT AGATTATTTG	8100
GAAAAATCCT TTAAGCTCAG TAAATATTCT ATTTTACAAA CGAGTTTAAA GCAGGGAACA	8160
AAATTAGTTC TGAATATCCT TATCCTATGG TTTGGCGCTC AATTAGTCAT GTCAAGTAAA	8220
ATTTCTATCG GTCAGCTGAT TACCTTTAAC ACACCTTTTT CTTACTTTAC AACTCCTATG	8280
GAAAAATTA TCAACCTCCA AACCAAACTC CAATCTGCGA AGGTCGCTAA TAACCGTTTG	8340
AACGAAGTCT ATCTAGTCGA ATCTGAATT CAAGTTCAAG AAAACCCTGT TCATTACAT	8400
TTTTTGATGG GCGATATTGA ATTTGATGAC CTTCTTATA AGTATGGTTT TGGATGAGAT	8460
ACCTTAACAG ATATTAATCT CACGATTAAA CAAGGAGATA AGGTTAGCCT AGTTGGACTT	8520
AGTGGTTCTG GTAAAACAAC TTTAGCCAAA ATGATTGTCA ATTTCTTTGA ACCCTACAAA	8580
GGGCATATTT CCATCAATCA TCAGGATATT AAAAACATTG ATAAAAAAGT CTTGCCCGT	8640
CATATTAATT ACCTACCCCA ACAAGCCTAT ATCTTTAATG GCTCTATTTT GGAAAACTTA	8700
ACCTTGGGCG GTAATCATAT GATTAGTCAA GAAGATATTC TAAAAGCTTG TGAAGTAGCT	8760
GAAATCCGTC AAGACATTGA AAGAATGCCT ATGGGCTATC AAACCTCAGCT CTCTGATGGA	8820
GCTGGTCTAT CAGGAGGACA GAAGCAACGA ATCGCTCTCG CTCGTGCTCT TTTAACTAAA	8880
TCTCCTGTTT TAATACTAGA TGAAGCTACT AGCGGTCTTG ATCTCTTGAC TGAGAAAAAG	8940
GTTATAGATA ATCTTATGTC TCTAACTGAT AAAACCATTC TCTTTGTAGC CCATCGTCTC	9000
AGTATAGCCG AACGAACCAA CCGTGTCATT GTTCTTGACC AGGGGAAAAT CATTGAAGTT	9060
GGTA	9064



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## (2) INFORMATION FOR SEQ ID NO: 18:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 7780 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 18:

CTCCATTTT	TTGATTTCA	AAATAAACAA	CCTCTCTGTT	AATTTTGTAT	AATTATAACG	60
ATATCCAAGT	TACTTGTC	CAAGTGTTT	TTTAAATTTATC	TCAAAAATAT	TTTTTCGTTT	120
AAAAAAGGA	GCCATCAGTT	GATTTCAAGC	TCCCTTTTAT	ACAGAATTAA	ACTATTTTAT	180
AGTTTCGACAA	TCTTACCTGT	TTCAAAGTAG	ACAACCCATT	CACAGATATT	TTTAGCATAG	240
TCACCGATAC	GCTCCAAGTA	GGAAATAACT	TGGAAATAAT	CACGACCCGT	AACAATGGCT	300
TCTGGATTTT	TCTTAATCTC	TTCAGTCGCA	AGGTCACGGA	TAGTTTCAAA	ATAGTGGTTA	360
ATTTGCTCAT	CCATGGAGGC	CACCCGGTAT	GCGTCGTCAA	CAGAACCATT	AAGATAAAGA	420
TCAAGTGCTG	CTTCCACAAC	GCTTTTAACT	TCACGTCCCA	TTTTTTTAAAT	TTCTTCCTCT	480
ACAGCTGGAA	TGCGCTCTTC	CCCCTTCATA	CGGATGGTTG	CCTGGGCAAT	GGCTACAGCG	540
TGATCCCCCA	TACGCTCCAC	ATCTGATACA	GCCTTAAGGA	CAGTCAAGAC	TGTACGCAAA	600
TCTTGAGAGA	CTGGTTGTTG	GAGTGCGATC	ATTTCAAATG	ATTTCTTTTC	CAGTTTCACT	660
TCGTATTCAT	TACTTCTG	ATCATCTTCG	ATGACCTCTT	TTGCCAGGTC	ACGGTCATGC	720
GTGACAAAAG	CACGTACCGT	ACGATTGATT	TGTGAGAGCA	CTTCTTGTCC	CATAGCGTAG	780
AACTGGTTAT	GTAATTTCTC	TAAATCTTCT	TCAAATTGAG	ATCGTAACAT	CTTTCATCTC	840
CTTATCCAAA	TTTTCCTGTA	ATATAGTCTT	CCGTTTCCTT	GTGTTGGGGA	TCAAGGAACA	900
TCTGCTTGGT	ATCATTAAAT	TCAATCAAAT	CTCCATCTAG	GAAAAATCCT	GTCTTATCAG	960
AGATACGTGA	AGCTTGCTGC	ATGGAACGGG	TTACCAGAAG	CATGGTGTAC	TTGTCTTTTA	1020
GACCATACAA	GGTTTCCTCA	ATTTTACCAG	CTGAAATCGG	ATCCAAAGCC	GAAGTTGGCT	1080
CATCCAAGAG	GATGATTTTA	GGACTAGTTG	CCAAGACACG	GGCCACGCAG	ACACGCTGCT	1140
GTTGACCACC	TGACAATCCA	ATAGCTGAAT	CATATAGACG	ATCCTTGACC	TCATCCCAGA	1200
TAGAGGCACC	TTGCAAGGCT	TTTTCTACGG	CTTCATCCAG	AACCTGCTTA	TCCTTAATTC	1260
CATTGATACG	AAGCCCGTAG	ACAACATTCT	CATAGATAGT	CATAGGGAAA	GGATTAGGTT	1320
GTTGGAAAAC	CATTCCGATT	TCCTTACGTA	ATTCAACCGT	ATCTGTACGC	GGACTGTAGA	1380
TGTTGTGACC	ATTGTACACC	ACGGATCCAG	TTGTGGTCAC	CTCTGGATTG	AGATCTCCCA	1440

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TGCGGTTGAG AGACTTGAGG AGGGTTGACT TCCCTGATCC AGATGGACCA ATCAAGGCTG	1500
TAATTTCTTT AGGTTGGAAA GATAGGGAAA CACTATTCAA AGCCTTCTTT TTATTATAAT	1560
AAACGGACAG GTCTGATACC TGTAATAATCG CATCTGTCAT ACGGTTTCCT TTCTAACCA	1620
AGTGACCAGA TACATAGTCA TTGGTGGACT GTAGCTTGGC ATTTTGAAA ATAGTTGCAG	1680
TCTTGTCATA CTCAATCAAA TCACCCAAGT AAAAGAAGCC TGTATAGTCA CTTGCACGAG	1740
CAGCCTGCTG CATATTATGC GTTACAATGA TGATGGTAAA GTTTTCTTTG AGCTCAAAACA	1800
TGGTCTCTTC TAGTTGCATG GTCGCAATCG GATCCAAGGC TGAGGCTGGC TCATCCATTA	1860
AGAGGATATC TGGCTTAACA GAGATGGCAC GAGCGATACA GAGACGTTGT TGCTGACCAC	1920
CTGATAAGGT CAAGGCTGAC TTGTGGAGAT CGTCTTTAAC CTGATCCCAG AGGGCAGCCT	1980
GACGAAGGGA GGTTCCTACG ATTTTCATCTA GGACTTGCTT ATCCTTAACT CCAGCACGTT	2040
CATGCGCAAA GGTAATATTA CGGTAAATTG ACTTAGCAAA TGGATTGGGA CGTTGAAAAA	2100
CCATTCCAAT GTGTTTACGC ATTTTCATAAA CGTTGATTTT TGGACGGTTG ACATCAATTC	2160
CACGATAGAG AATCTGCCCA GTTACTTTAG CAATATCAAT AGTATCATTG ATGCGATTGA	2220
GACTGCGTAA GTAGGTAGAT TTCCCCGATC CCGACGGGCC AATCAAAGCT GTAATTTTAT	2280
TTCTTTTCAA TTGCATATCA ATCCCCTTAA TGGATTCAAT TTTACCATAG TAAACATGGA	2340
CATCCTTAGT AGAAAGGGCT ACTTTTTCTT CAGGAAAGGT AAGGATATGC TTCTCATCCC	2400
AGTTATATGT TGACATGGCT TCTCCTTTAG GCAGCGGTTA ATTTCTTGTG TAGATAGCTT	2460
CCGAACCTAC GAGCTCCAAA GTTAAAAATC AGGATAAAGA TCAGGAGCAC AGCGGCAGAA	2520
CCTGCTGATA CAATGGTTCC ATCTGGAATA GTGCCTTCAC TATTGACTTT CCAGATATGG	2580
ACAGCCAAGG TTTCTGCTTG ACGGAAGATA GAGATGGGGC TAGTCACACT GAGGATATTC	2640
CAGTTAGACC AGTCAAGAGC TGGCGCCGAT TGCCCTGCTG TATAGATCAG AGCTGCAGCT	2700
TCGCCAAAGA TACGACCAGA TGCCAAGACG ACACCCGTTA CAATACCTGG AAGCGCTTCC	2760
GGAATAACAA CATGAACCAC TGTCTCCCAG CGAGAAATCC CAAGAGCCAG ACCAGCCTCA	2820
CGTTGGGTAT GGTGAACGTG TTTCAAATA TCCTCTACAT TACGCGTCAT CTGAGGCAAG	2880
TTAAAGACTG TCAAGGCCAA GGCACCTGAA ATGATTGAAA ATCCATACTC AAAGTGACTT	2940
ACAAAGATCA AGTAACCAAA GAGACCCACC ACCACTGATG GTAAAGAGGA CAAAAATTCA	3000
ATACAAGTCC GCACAAAGTT GGTAAACAGGA CCTTTTCTAG CATATTCAGC CAAGTAAATC	3060
CCAGCTCCCA TAGAAAGAGG TACAGAAATA ATCAAGGTAA TGACCAATAG GAAAAAGGAA	3120
TTGTAAAGCT GAATGCCAAT CCCACCACCT GCTTGAAAAA CAGAAGACCT TCCAGTCAAG	3180

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AAAGACCAAG AGATATGGGG CAAGCCCCGA ACCAAGATAT AGAGAATCAA GGAAGCCAAG	3240
ATTGTCACAA TGATGCTAGC AATCGTATAG AGGACAGCTG TTGCAAGTTT ATCTAATTTT	3300
TTAGCGCGCA TAATTTTCTT TCCCTCTTTC TTTCTGTAATC AATTTAATCA CACTGTTAAA	3360
AACTAAGCTC ATCAAGAGCA GTACCAAGGC CAGTGACCAG AGAACATTAT TATTTACAGT	3420
TCCCATGACA GTGTTCCCAA TTCCCATAGT TAATATAGAA GTTAAAGTTG CAGCTGGTGT	3480
GGTCAAGGAA GTTGGGATAA CAGCTGAGTT TCCGACAACC ATCTGGATAG CTAGAGCCTC	3540
ACCAAAGGCA CGCGCCATCC CAAAGACCAC TGCAGTGAAG ATACCAGAAC GGGCCGCCTT	3600
CAAGATCACA CGCCAGATAG TCTGCCAGCG AGTGGCTCCC ATAGCGAAAC TGGCTTCACG	3660
ATAATAACGA GGAACCGCAC GCAAGCTATC CGTTGTGATA AAGGTTACGG TCGGCAAAAT	3720
CATGACAAAG AGGACGGAAA TCCCTGACAA AATCCCAAAA CCAGTCCCAC CAAAGACACT	3780
GCGAACAAAG GGAACGACGA CTTGCAAGCC AATAAATCCG TACACTACTG AAGGAATCCC	3840
AACCAGGAGT TCAATAGCTG GTTGCAAAAT CTTGCCCCCT TTTGGTGATA CTTGGTTCAT	3900
AAAACTGCT GCACCAATAG CAAAGGGTGT TGCATAAGG GCTGAGAGAA TGTAACGAT	3960
AAAGGAACCC AAAATCATAG GAAGGGCACC AAATCTTTTA CTAGAAGGAT TCCAAGTTCC	4020
TCCCAAAAGA AAGTCAAAGA TATTCACACC ATTGACAAAG AAGGTGCGACA AGCCTTTTGT	4080
CGCTACGAAA ACCAAAATCA TGGCCACAAG GATGACTATC AAAGAAAGAC AGGCAAAGGT	4140
CAAACCTTTT CCTAATTTCT CCAGACGAGA ATTCTTTGAT GGAAGCAACA TTTTCTTAGC	4200
TAATCTTCT TGATTCATTA TTGTCTCCCT TCCAACACTG TCACAGTTCC GGCAGCATCT	4260
TTTTCAACCT TCATTTCTTT AATCGGAATA TACTTCAATC CTTTGACAAT CCCTTCTTGG	4320
GTCTCATCCG AGAGAACAAA ATTGAGAAAT TCTGCAGCCA ACTCATTGGG CTGCCCCAAT	4380
GTATACATAT GCTCATAAGA CCACAAGGGC CAATTATTGC TACTTATATT TTCTGGACTT	4440
AAGTCATAGC CATTCAACTT CATGCTTTTG ACCGAATCAT CTATATAGGT AAGAGATAAA	4500
TAAGAGATAG CTCCTGGACT TTTTGATACG ATTGATTTTA CCGCTCCATT TGAATCCTGC	4560
TCCTGACTTT GCATGGCAGA CTGACCTTCC ATAATGACAG TATCAAAGGT AGCACGAGAG	4620
CCAGAGCCGG CTGCCCCGATT GATAACAGAG ATGGGTAAGT CCTTACCACC AACCTCTTTC	4680
CAATTGGTTA CCTCACCTAT GAAGATTTGA CGAAGTTGCT CTGTCGTTAG GTTATCAACA	4740
TCAACCTCCT TATTGACAAT CAGAGCCAAG CCAGCTACCG CGACCTTGTG GTCAACAAGA	4800
GCAGAAGCAT CAATTCGGTC TTTTCTCTCA GCAAATACAT CTGAGTTTCC TATATCAACT	4860
GCCCCAGACT GAACCTGGGA CAAGCCTGTA CCAGAACCCT CCCCTTGGAC ATTGACCGTT	4920
TTTCCAACAT GGATCGTGCC AAATTCATCT GCCGCTACTT CAACCAAGGG TTGCAAGGCA	4980

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CTTGAGCCAA CAGCCGTTAT GGATTCTCCA CGATCAATCC AGCTAGCACA GCCTACTAAA	5040
CAAGCCGTCA GCCAAAAAGC GATAAGAGAC AGAGCAAGCT TTTTCTTTT TTTCACTGTT	5100
TTTCTCCTCG AAAATAATTA TGAATACTGT GAATTTTTTA AGTAGTCTT TATGAGTTGA	5160
CGCATGAATT CTTACCAAAT TTCTGCGCAA TTGATTATTT ATATAATATA GGCTATATTA	5220
CTCTTTCCTA ACCTCCTTTT TTCATATGTG GATAAAATCT CTGTCTATC CCTTCCCCCA	5280
TTGTACCCCA TTATAGTCAT TTCGTGTCTC TTTTCCCCT TTTAATGCA AGGGAAATTA	5340
CTCTCCTTAG ATGATAATCC AAAAGCTAGA AAGGTATCTC AAACCTCTCT ACTCTCCCAG	5400
ACTAGTTTAC AACTAAAAGG AAAAGATTCT ATTTTATGAG AAATCTAGTT TACAAGCGGT	5460
AAGAACGCTA ATAACATAAC TTCTGTACT CTTTGAAAAT CTCTTCAAAC CAGTGTTTTG	5520
AGCTATCTAT GGCTAGCTTC CTAGTTTGCT CTTTGATTTT CATTGAGTAG TAAACTACA	5580
TGTAATGGCA ATCAAGATAT CAAGAATCAT CCTACTAAAA AAATCCATAC TTTCACTATA	5640
ACATAGAATA AGATATTTGA CTAGCATTTT CATTTGAATC TGAGGCCTTT TGGAAAATAA	5700
TTTTTCAAAA CATTTCCAGT AACCTTTGCA AAGCCCAAGC CATTGCCTTT AACCAAACT	5760
TGGTACCAAC CATTTGGCAG ACTTTCTGCC AGCTGAACGG TTTCTCCAGC CGCATACTTG	5820
ACAAACGCTT CTTGGCCAAT TTCAACCGAC TGTTCGACCT GACTCGGTTT CAAGGCTAAA	5880
CCAAGAGCGA AACTGGGCTC AAAGCGTTTC TTCTTAAAAG TACCCAGATG CAGTCCATTG	5940
CGAGCAATCT TGAGCTTCCA TAAATCTGGC AAAAGTTCTG GCAAGAGATA AAGCTGGTCT	6000
CCAAAAATCT GCAAGATACC CGGTAGATTG ACCTTCAAAT GGTTTTGGGC AAATTCCTGC	6060
CACAAGGCAA CTTGTTACCG GCTGAGGTTA CTCTTACTTG CCTTAAATTT AGGAGCTGGA	6120
TTGTTACCCT TAACTGTAG ATGGGCAACA AACTGACCCT CTCCCTTAAA CTGATGAGGA	6180
TACATCCGAG CCGTTTCTGG CAGGTCAATA CCAGCTACCA TTCCATTGAT ATGCTCTACT	6240
GGCAACAAGT CAAAATCATA CTCTCCAGC AACCAATTGA CAATCTCTC GTTTTCCTCG	6300
GGTGCCAGG TACAGGTCGA ATAAACCAGA TGACCACCTT CAGCTAACAT GGTCACTGCA	6360
TCCTCCAGAA TTTCTCTTTG CAAGCTAGCA CATTGACTCG GATAATCTAA GCTCCAATAG	6420
TCCATAGCAT CAGGTTGCTT ACGAAACATT CCTTCACCAG AGCAAGGGGC ATCAAGAACG	6480
ATTAAGTCAA AATAGCCTTT AAAGACCTTG ACCAAGCGGT CGGCAGATTC ATTGGTCACC	6540
ACGACATTG TCGTCCAAA ACGCTCCATG TTTTCAACCA AAATCTTAGC CCGTTTGCTT	6600
GAAATTTTAT TGGAAACAAG TAGCCCCCTC CTGCTAGAT AGGCTGCCAG TTGAGTTGAT	6660
TTGCCCCCG GTGCAGCAGC CAAGTCCAAG ACCTTCATAC CAGGACTGGG TTGGGCTACT	6720

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TGAGCCACCA TTTGAGCAGC AGGTTCTTGC GAATAAACTA AACCTGTAGC ATGCTCAGGC	6730
GATTTCCCTG AAACCTTCCC ATAGTGGCCC CAAGGGGTTT GAGTAATGGC ATCAGAAAAG	6840
GAAAGTTGCT CTTCTTTTAA GGGATTGACC CGAAAGGCCG AAACCGCTTC CTCCTCAAAA	6900
GAGGCAAGAA AATCTCTTGC CTCATCTCCT AGTATCTCTT TATATTTTTC AACAAATCCT	6960
TCTGGAATTT GCATTTAAGT TCTTTTCCTT TCGTAAATAT AGGACTGAAT TTCCTCCTGC	7020
ATCTCAAGAG GCACCATCAT GACCGGCTGT CTGGTTTGAA AATCAGGAGC TTCACCAAAA	7080
AGGGTCACAA CCCGATAGCC CAGACTTTCC CCTAAAATAC TAGCTGCGGC ATAATCCCAT	7140
GGTTGCAGAT AAGTGAGATA GGTCAACAAA CGCCCTGACA AAATCTTGGC AAAACTAATG	7200
GGCGCACTTC CATAGACACG AACACCAAGA ACCGCTCGGC TCAAATCAGC CAGCCCCCAT	7260
TCATTGGTTT CCAGCATACC ACTATTCCCT GCAATGAGAA AATCTCCAAG TGGTTTAGTT	7320
TTAAAAGGAG CTAGGGACCT ATCATTTAGA CAACTGGAA ATTCCCCACC ACCGTGGTAA	7380
CAATCCCCTT TGACCACATC ATAAATCAGA CCAAACTGTC CCTGACCATT TTCAAAATAA	7440
GCCATCATAA CAGCAAAATC TTCCTGCTGG GCTACAAAAT TATTGGTACC ATCAATGGGA	7500
TCAATGACCC AAACCTTGCC CTCTTGAACC GAGGCTCGCA GACAACCTTC TTCAGCACAA	7560
ATCTTATCCT CAGGATAACG GGACAAAATC TCACCAACCA AGAGTTCCTG AACTTCTTTG	7620
TCCAGTCTGG TCACCAAAATC TGTGGAGAG GACTTGGTTT CAACACGCAA GTCTTCTCTG	7680
ATATGGTCAA GAATGTACTG ACCTGCTTTC TTAACAAGCT CTTTAGCAAA TTCAAATTTA	7740
CTTTCCAAGA GAAATCTTTC CTCCCCCTTT TTCTTTGGGG	7780

(2) INFORMATION FOR SEQ ID NO: 19:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 4820 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double -
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 19:

GTAATGATAT AGGAACACCA GGTGACCTGA TGGGACGTCG TAAGCCTATG AACTACTAGC	60
TGCTAAAGGC TTAAAGATG GTATGGTACC ATATATCTCA AACCAATACG AAGAAGAAGC	120
CAACAAAAG GGCAAGACAA TCAATCTCTA CGGTAAAACA AGAGGTTTGG TTACAGATGA	180
CTTGGTTTTC GAAAAGGTAT TTAATAACCA ATATCATACT TGGAGTGAGT TTAAGAAAGC	240
TATGTATCAA GAACGACAAG ATCAGTTTGA TAGATTGAAC AAAGTTACTT TTAATGATAC	300
AACACAGCCT TGGCAACAT TTGCCAAGAA AACTACAAGC AGTGTAGATG AATTACAGAA	360

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ATTAATGGAC GTTGCTGTTT GTAAGGATGC AGAACACAAT TACTACCATT GGAATAACTA	420
CAATCCAGAC ATAGATAGTG AAGTCCACAA GCTCAAGAGA GCAATCTTTA AAGCCTATCT	480
TGACCAACA AATGATTTTA GAAGTTCAAT TTTTGAGAAT AAAAAATAGT GTCTACTATT	540
AGGAAATAAA GTTTAAAAAG GTGATGAAGA ACAAACCAAG ATTCAAGCAG GAATTCCTAC	600
TGATAATGAA GTAAGTTATG ATCTTATTTA TCAGCAGGAA ACTCTTCCTG CAACAGGTTT	660
ATCAACTTCT GAGCTTACAG CTTTAGGCCT ATTAGCTGTT GGTAGTTTAG TTCTTTTGGT	720
TCATAATATG ACGGGAACAG TTTTGTGCTC CCTCTGAAAA GTCATCATTT GATGGCTTTT	780
TTCTATATAG GGTAAAAGAT AGGGTAAAAG GCTATCATCG GACAAAATAA AGAAGGCATG	840
ATATAATATA AAGTAGATTT CTATGTCATA AAACAAGAAC TGTGGGACA TCATTCAATT	900
GAAACTCTC TATGTTCAAA CAATAGTAAA ATAAATAGG GGATCTAAAT CCTTGCTATG	960
AAAGGAAAAA ACTCAATGGC TACTATTCAA TGGTTTCCTG GTCACATGTC TAAAGCTCGT	1020
CGACAGGTGC AGGAGAATTT AAAATTTGTT GATTTTGTGA CGATTTTAGT AGATGCACGC	1080
TTGCCTCTAT CTAGTCAAAA TCCTATGTTG ACCAAGATTG TTGGTGATAA ACCAAAACTC	1140
TTGATTTTAA ACAAGGCCGA CTTGGCTGAT CCAGCAATGA CCAAGGAATG GCGTCAGTAT	1200
TTTGAATCAC AAGGAATCCA GACGCTAGCT ATCAACTCCA AAGAGCAAGT GACTGTAAAA	1260
GTTGTAACAG ATGCGGCCAA GAAGCTCATG GCTGATAAGA TTGCTCGCCA GAAAGAACGT	1320
GGGATTCAGA TTGAAACCTT GCGTACTATG ATTATCGGGA TTCCAAACGC TGGTAAATCA	1380
ACTCTGATGA ACCGTTTGGC TGGTAAAAAG ATTGCTGTTG TTGGAAACAA GCCAGGGGTC	1440
ACAAAAGGTC AACATGGCT TAAAACCAAT AAAGACCTGG AAATCTTGA TACACGGGG	1500
ATTCTCTGGC CTAAGTTTGA GGATGAACT GTTGCACTTA AGTTGGCATT GACTGGAGCT	1560
ATCAAAGACC AGTTGCTTCC TATGGATGAG GTTACCATTT TTGGTATCAA TTATTTCAAA	1620
GAACATTATC CAGAAAAGCT GGCTGAACGC TTCAAACAAA TGAAAATTGA AGAAGAAGCG	1680
CCTGTGATTA TTATGGATAT GACCCGCGCC CTCGGTTTCC GTGATGACTA TGACCGTTTT	1740
TACAGTCTCT TCGTGAAGGA AGTCCGTGAT GGCAAACCTCG GTAACATAC CTTAGATACA	1800
TTGGAAGACC TCGATGGCAA CGATTAAAGA AATCAAAGAA TTCCTTGTA CAGTCAAGGA	1860
GTTAGAAAGC CCTATTTTTT TAGAGCTTGA AAAGGATAAT CGCTCAGGAG TTCAAAGGA	1920
AATCAGCAAG CGTAAAAGAG CCATTCAAGC TGAATTAGAT GAAAAATTGC GCTTGAATC	1980
CATGCTTTCT TATGAAAAAG AACTTTATAA GCAAGGATTG ACCTTAATTG CAGGTATTGA	2040
TGAGGTTGGT CGTGGTCCTC TTGCTGGTCC TGTAGTCGCT GCGGCCGTTA TTTTATCTAA	2100

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AAATTGTAAG ATTAAAGGTC TCAACGACAG CAAGAAAATT CCTAAAAAGA AACATCTGGA	2160
GATTTTCCAA GCCGTTCAAG ACCAAGCCTT GTCGATTGGA ATTGGTATCA TAGATAATCA	2220
GGTCATCGAC CAAGTCAACA TCTATGAAGC AACCAAATA GCCATGCAAG AAGCAATCTC	2280
CCAGCTCAGC CCTCAACCAG AGCACCTTTT GATTGATGCC ATGAAACTGG ACTTGCCCAT	2340
TTCACAAACC TCCATTATCA AAGGAGATGC CAACTCCCTC TCTATCGCAG CAGCATCTAT	2400
AGTAGCCAAG GTAACACGTG ATGAATTGCT GAAAGAATAC GATCAGCAGT TCCCTGGCTA	2460
TGATTTGCGT ACTAATGCAG GATATGGCAC AGCTAAACAT CTGGAAGGCC TCACAAAAC	2520
AGGAGTTACC CCAATTCACC GAACCAGCTT TGAACCCGTT AAATCACTGG TTTTAGGTAA	2580
AAAAGAAAGT TAATTGAAAG GAAATAACAT GGAGGAACAG TCGGAAATAG TCCGTTCTAA	2640
GAAAGAATTC GCCTTTGCAT CCAGCACTAT ACTATCCCAA GTTGGTCGAG GAATCATGT	2700
CGGCCTCATC GTTGGAAATTA TCGTCGGATC CTTTCGTTTC TTAATTGAAA AGGGCTTCCA	2760
CCTGATACAA GGAGTTTATC AAGATCAAGG GTACTTAGTG CGCAATCTTT TTGTACTGGT	2820
TTTGTTTTAT ATACTCATCT GTTGGCTCAG TGCCAAATA ACACGGTCAG AAAAAGATAT	2880
TAAAGGCTCA GGAATTCCTC AAGTCGAAGC CGAACTGAAA GGCTTCATGT CCCTCAACTG	2940
GTGGGGCATT CTTTGGAAAA AATATGTGCT AGGTATTCTT GCTATTGCCA GTGGACTCAT	3000
GCTGGGTCGA GAGGGACCCA GCATTCAACT TGGAGCAGTT GGTGGTAAAG GAATTGCCAA	3060
GTGGCTCAAA TCCAGTCCAG TAGAGGAACG TTCCTTGATT GCCAGTGGAG CTGCAGCAGG	3120
TTTAGCCGCA GCCTTTAATG CTCCTATTGC AGCACTTCTC TTTGTTGTAG AAGAAGTCTA	3180
TCACCATTTT TCGCGCTTTT TCTGGGTCTC AACTCTAGCA GCCAGCATCG TAGCAAAC	3240
TGTGTCTCTA CTCATGTTTG GTTTGACACC AGTATTGGAT ATGCCAGATA ACATTCTCTC	3300
CATGACCCTA GATCAGTATT GGATATATCT CGTCATGGGA ATTTTCCTTG GATTTTCAGG	3360
TTTTCTCTAT GAGAAAGCTG TATTAAACGT TGAAGAGTT TATGACTTGA TTGGTCAAAA	3420
AATCCATTG GATAGGGCTT ATTATCCCAT CTTGGCTTTT ATCCTTATCA TACCAGTCGG	3480
AATCTTCTTA CTTCAAATCA TTGGTGGCGG AAATCAGCTT GTCCTTTCTT TAACTGAACA	3540
AAATTTTAGT TTCCAAGTTT TATTAGCTTA CTTTTAATC CGCTTTATTT GGAGTATGAT	3600
TAGCTATGGA AGTGGACTGC CAGGAGGAAT TTTCTCCCC ATTTTAGCTC TTGGTTCTTT	3660
GCTTGGTGCC TTAGTTGGTG TTATCTGTGT CAATCTTGGG CTTGTCAGTC AAGAGCAATT	3720
CCCTATATTT GTCACTCTAG GAATCAGTGG CTATTTTGGG GCCATATCAA AAGCTCCCTT	3780
AAACCGCTATG ATCCTCGTAA CTGAGATGGT AGGAGATATT CGCAACCTTA TGCCACTTGG	3840
TCTTGTCACT CTTGTTTCTT ATATTATCAT GGATTTGCTC AAAGGTACGC CAGTCTATGA	3900

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AGCCATGCTG GAAAAAATGC TTCCAGAAGA AGTATCTAGC GAAGGAGAAG TTACACTTAT	3960
CGAAATACCA GTTCTGATA AAATTGCTGG GAAACAAGTT CATGAACTCA ACTTACCACA	4020
CAACGTCCTC ATCACAACTC AAGTCCATAA TGGCAAGAGC CAAACAGTTA ACGGCTCAAC	4080
CAGAAATGTAT CTGGGTGATA TGATTCACCT GGTATTCCA AAAAGTGAAA TTGGAAAAGT	4140
CAAAGATTTG TTGTTGTAGT ATGAGTATTT ACATAATTTA TGTTATGTAA ATGATCAGTT	4200
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TGATTTATTT AGAAAACCGA TTCTCAGGAA TGAGATCGGT TATTTTTTAC TGATGAGGAA	4260
TTTTACATAT AAATAATTGA ACTTTATTAA AAATAAGACT ATAATTAAGT TAGAAATGAT	4320
AAAGTATAAA GCTAGAAAGG AGTTTACTGT ATCAAATCTG TACAGTAAGA TTAATCAT	4380
GAAAAAGAAA ACAATAGCAA TTATATAGAG AAATGAAATA GAAATAGGAT AAAACAATCA	4440
GGACAATCAA ATCAATTTCT AGCAATGTTT TAGAAGTCCA GATGTACTAT TCTAGTTTCA	4500
ATCTATTATA CAATGTGTTT TGTATCTCAT AGCTCCTTAT ATAGCTCTTC AGTTATGTAG	4560
TATTAACAGA AGTTTAGTGG GTGAGATTTT TATTATTTTC CTTATTCTGT TTTGTTGTA	4620
GGTCTAAGTC TTTTATCAC TTTGAAAAAC TCCTATAACA TCTTCCGAA AAATAAT	4680
TTTCTTGAAG AATATACAAG TCTATGCTAT ACTACTAGTA TACTTACTTA TGGAGAAAAT	4740
ACATGAAACG TGAGATTTTA CTGGAACGAA TCGACAACT AAAACAACCTC ATGCCCTGGT	4800
AAGTTCTGGA ATACTACCAA	4820

## (2) INFORMATION FOR SEQ ID NO: 20:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 21338 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 20:

CTACGACATC ATGATTAACA GTCATGCGCT ACTACCAACT GAGCTATGGC GGATAAAATA	60
GTCCGTACGG GATTCGAACC CGTGTTACCG CCGTGAAAAG GCGGTGTCTT AACCCCTTGA	120
CCAACGGACC TTCTATCTGT AGCAGATATA ACCATTATAT CAATTTCTTG CTAATTGTCA	180
ATCACTTTTG AGATTTTTC TCTAAAATAT CTTTAATTT TCTAATTTT AATCTTGAAA	240
TAGGACAACG ATGGTCTTCA TAGAAAACAA TTTCTAAGTT TTTTCGATCA ATTTCTCTGA	300
TATTACCTAT ATTACCAAA AATGACTTGT GAGGAGAATA AAATCGCTGA GTATGTTTGT	360
CCTTTTCCTG AATATCTGTC ATGGTACCAT AAAACTCTTT TGCAAAATTC TTACCAATAA	420



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TGCGCAATTT ATGAGATACC CCTGTTGTTT CAATATACAA AATATCATGG TAAGGAATTT	480
TTAAATCATT TCCCTTGTA TGTAGTCGA AATAATCTAC AACATCTTCA TTTTCAAGTA	540
ACATACTCTT CGTGTAGAAG ATATTTTGCT CAATTCTCTT CTAAACATC TCATCATTTGA	600
TATCCTTATC AACAAAATCT AGGGCTGATA CCTGGTATTT ATAGGTTAGA GTCGCAAACT	660
CTGATCGACT AGTGATAAAG ACGATAATAG CGTAAGGATT GTAATGACGA ATGAGCTGAG	720
CCACTTCAAA TCCCTTTTTC TCAATTCAT GAATATCGAT ATCTAGGAAA TAAAGCTGAT	780
TTACTTCATC ATTTTCAATG TATTCTTCAA ATTCACGGAC TTTTCCGTT GTCTTGTATG	840
ATATTGGAAT ATTCGATTCT TTCGAAATTT CATCCAATAT TCTCTCTAGT CTCACTTGAT	900
GTTCAATAAC ATCTTCTAAA ATTAAACTT TCATTCAAAT TCCCTCTTAA ATCTAATGAT	960
TTGTCTAAAT GTACTGCCTT CCATCTCTGT TTCTAAAATA ATATTGTTGT ACTTATCTAG	1020
TAGTTCTTTC ACATTATTTA ATCCGACTCC GCGATTTCTT CCCTTAGTGG AGAATCCTAA	1080
GGCAAATAGA TCTCTGAAG GAGTCATCGT CATTTTACAT GAATTCTGAA TCACAATAAC	1140
TGTTTCAGTT TCCATCTTAA TAACTGCTAC TTCCATCTGC TTTTATAGC TATCAGCCGA	1200
TCCTTCGACA GCATTATTCA ATAAAACGCT CATGATACGA ACCAAATCCA ATAGTTCAAT	1260
TGGAAGCTTG GTAATCGTAT CTTTACTTC CAGTGTAAC TCTACACCAT TATTCGAGC	1320
ATAGACAATT GACTGAGCAA CCAAACCTCG TAAAGCTGAG TCTTCTATGT TGTTCAAATC	1380
AAAGTAAGTG TACTTATCTG AACGCAATTT ATGATTTGCT TTGACTAAAA CTTCATTGTA	1440
AATTCTGTCA ATTTCTGTA AATTACCACT GTCAATTGCC ATCTGCATGC TGACAAGCAT	1500
TCCAGCATAA TCATGTCGAA AACCACGGAT TTCATTATAC AGACCAACAA TTTTATCTGT	1560
GTAATCTGT AAATGTTTCT GTTCAAATTT CTCTGCTTC AAAGCAATCT CTTTCTCCAT	1620
TTGAACCTTA TGAGAATTCA TTGCAAAGAA GGTCAAAGG AGAGAGATAA AGACAATAGA	1680
TGACAAAATA CTTCCAAAAC TATTCAAATG TTTAATCGTA CTTACCATAT CTGAAACGAA	1740
AGATACAATA TGTAGCAATA GTAAAGCAAA AAATACTTTT TTCAAGAAAG GATAAAGGTA	1800
GTCCTTGTCA AAATAGGCTA GTTCCAAATG GAAATAGTAA ATGATTTTTA ATGTAACAAA	1860
ATAGGTTAAC ACCGTCACAA CGAAAAAGAA TGGGAAATGA TATTGTAAAA CAAAATTATC	1920
TCCTGTTATA GAGGAGAAAA TTACGGACAG AAAGTTATGA GTGCTCTCAT ATAAAAGAGA	1980
TAGTAGTAAA CTTAGGAATA GTCCTCTATC CCTCTCATAC TGTTTCATCC ATCGAAAATA	2040
GGAATATAAG CCCAAAGGAA ATAAAATCT TTCAATCCCT ATTTTATCTA AATATAGAAG	2100
ATAAAAGGAA AATTCAAGTA CTATTTCAGT TAGTAATGTA TAAGCACCAA AAACGTATAA	2160
TTCTTTTCTA TTTATTCGAC CTTTACAAAT TAAACGGTAA CTGTGACTAA TAATTAAAAA	2220

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ATGAACAATA ACTGTCCCAA ATCCAAGTAA ATCCATTACT CTTTCTCCTT ATTCATTAC	2280
TTTTTTCGTA GGAAAAGAAA ATCAAGGATG ATTCCTGAAA TCCTCATCTC CCCACCTTTA	2340
ATCTTTTGTA AGTCTTTTTC CTTCAAAGCT ACAAAGTGT CCAATTTAAC TGTGTTTTTC	2400
ATAATAAAAT CTCCTAAAAT GTTTTCTCTT GTAAGCTAAC TTACAAAAAC CATTATACAA	2460
AATGGAATTT CGTTTTAGAT AAAATTCTCT CAACTGTCAT TTTTCTCTCC CAAAGTGTAC	2520
TTTTTTAAGA AAAAAGCCGG GAAAATCCCC AGCTTTGCTA TTATATTGAT CCCAGCAGGA	2580
TTCGAACCTG CGACCGTTCG CTTAGAAGGC GAATGCTCTA TCCAGCTGAG CTATGAGACC	2640
TAATACAATT ATTCTACCAA AAATTCGAAT AAAAGTCAAT TTTCTATTTA TGGTAGGGGA	2700
ATCCCTGCTG AATCGTAAAA GCGCGATAGA TTTGTTCAAC AAGAACTAGT CTCATTAAC	2760
GATGGGGTAA GGTTAGGCGA CCAAACTGA CAGAAAGATT GGCTCTATTT TTTACAGATG	2820
ATGATAATCC TAAACTTCCC CCAATAATAA AAGTAAGAGT AGAAAATCCT TTTATAGAAG	2880
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TTTATTTTCT	TTTGGACTTC	CATTAGAAGG	TGAATTAATT	CAACAAATAC	CTGTTTCACG	16920
TGAAACATCC	ATACACATTC	GTCATCGAAA	AACAGGAGAT	GTTTTGATTA	AAAATGGGCA	16980
TAGAAAAAAA	CTCAGACGTT	TATTTATTGA	TTTGAAAATC	CCTATGGAAA	AGAGAAACTC	17040
TGCTCTTATT	ATTGAGCAAT	TTGGTGAAAT	TGTCTCAATT	TTGGGAATTG	CGACCAATAA	17100
TTTGAGTAAA	AAAACGAAAA	ATGATATAAT	GAACACTGTA	CTTTATATAG	AAAAAATAGA	17160
TAGGTAAAAA	ATGTTAGAAA	ACGATATTAA	AAAAGTCCTC	GTTTCACACG	ATGAAATTAC	17220
AGAAGCAGCT	AAAAAAGTAG	GTGCTCAATT	AACTAAAGAC	TATGCAGGAA	AAAATCCAAT	17280
CTTAGTTGGG	ATTTTAAAAG	GATCTATTCC	TTTTATGGCT	GAATTGGTCA	AACATATTGA	17340
TACACATATT	GAAATGGACT	TCATGATGGT	TTCTAGCTAC	CATGGTGGAA	CAGCAAGTAG	17400
TGGTGTATC	AATATTAAAC	AAGATGTGAC	TCAAGATATC	AAAGGAAGAC	ATGTTCTATT	17460
TGTAGAAGAT	ATCATTGATA	CAGGTCAAAC	TTTGAAGAAT	TTGCCAGATA	TGTTTAAAGA	17520
AAGAGAAGCA	GCTTCTGTTA	AAATTGCAAC	CTTGTTGGAT	AAACCAGAAG	GACGTGTTGT	17580
AGAAATTGAG	GCAGACTATA	CTTGCTTTAC	TATCCCAAAT	GAGTTTGTAG	TAGGTTATGG	17640
TTTAGACTAC	AAAGAAAATT	ATCGTAATCT	TCCTTATATT	GGAGTATTGA	AAGAGGAAGT	17700
GTATTCAAAT	TAGAAAGAAT	AATCTTTAAT	GAAAAAACAA	AATAATGGTT	TAATTAATAA	17760
TCCTTTTCTA	TGGTTATTAT	TTATCTTTTT	CCTTGTGACA	GGATTCCAGT	ATTTCTATTC	17820
TGGGAATAAC	TCAGGAGGAA	GTCAGCAAAT	CAACTATACT	GAGTTGGTAC	AAGAAATTAC	17880
CGATGGTAAT	GTAAGAAGAT	TAACCTACCA	ACCAAATGGT	AGTGTATATC	AAGTTTCTGG	17940
TGTCTATAAA	AATCCTAAAA	CAAGTAAAGA	AGAAACAGGT	ATTGAGTTTT	TCACGCCATC	18000
TGTTACTAAG	GTAGAGAAAT	TTACCAGCAC	TATTCTTCCT	GCAGATACTA	CCGTATCAGA	18060
ATTGCAAAAA	CTTGCTACTG	ACCATAAAGC	AGAAGTAACT	GTTAAGCATG	AAAGTTCAAG	18120

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TGGTATATGG ATTAATCTAC TCGTATCCAT TGTGCCATTT GGAATCTAT TCTTCTTCCT	18180
ATTCTCTATG ATGGGAAATA TGGGAGGAGG CAATGGCCGT AATCCAATGA GTTTTGGACG	18240
TAGTAAGGCT AAAGCAGCAA ATAAAGAAGA TATTAAAGTA AGATTTTCAG ATGTTGCTGG	18300
AGCTGAGGAA GAAAAACAAG AACTAGTTGA AGTTGTTGAG TTCTTAAAAG ATCCAAAACG	18360
ATTACAAAA CTTGGAGCCC GTATTCCAGC AGGTGTTCTT TTGGAGGGAC CTCGGGGAC	18420
AGGTAAAAC TTGCTTGCTA AGGCAGTCGC TGGAGAAGCA GGTGTCCAT TCTTTAGTAT	18480
CTCAGGTTCT GACTTTGTAG AAATGTTTGT CGGAGTTGGA GCTAGTCGTG TTCGCTCTCT	18540
TTTGTAGGAT GCCAAAAAAG CAGCACCAGC TATCATCTTT ATCGATGAAA TTGATGCTGT	18600
TGGACGTCAA CGTGGAGTCG GTCTCGGCGG AGGTAATGAC GAACGTGAAC AAACCTTGAA	18660
CCAACTTTTG ATTGAGATGG ATGGTTTGA GGGAAATGAA GGGATTATCG TCATCGCTGC	18720
GACAAACCGT TCAGATGTAC TTGACCCTGC CCTTTTGCCT CCAGGACGTT TTGATAGAAA	18780
AGTATTGGTT GGTCTCTCTG ATGTTAAAGG TCGTGAAGCA ATCTTGAAAG TTCACGCTAA	18840
GAATAAGCCT TTAGCAGAAG ATGTTGATTT GAAATTAGTG GCTCAACAAA CTCCAGGCTT	18900
TGTTGGTGCT GATTAGAGA ATGTCCTGAA TGAAGCAGCT TTAGTTGCTG CTCGTCGCAA	18960
TAAATCGATA ATTGATGCTT CAGATATTGA TGAAGCAGAA GATAGAGTTA TTGCTGGACC	19020
TTCTAAGAAA GATAAGACAG TTTCACAAAA AGAACGAGAA TTGGTTGCTT ACCATGAGGC	19080
AGGACATACC ATTGTTGGTC TAGTCTTGTC GAATGCTCGC GTTGTCCTATA AGGTTACAAT	19140
TGTACCACGC GGCCGTGCAG GCGGATACAT GATTGCACTT CCTAAAGAGG ATCAAATGCT	19200
TCTATCTAAA GAAGATATGA AAGAGCAATT GGCTGGCTTA ATGGGTGGAC GTGTAGCTGA	19260
AGAAATTATC TTTAATGTCC AAACCACAGG AGCTTCAAAC GACTTTGAAC AAGCGACACA	19320
AATGGCACGT GCAATGCTTA CAGAGTACGG TATGAGTGAA AAACCTGGCC CAGTACAATA	19380
TGAAGGAAAC CATGCTATGC TTGCTGCACA GAGTCTCAA AAATCAATTT CAGAACAAAC	19440
AGCTTATGAA ATTGATGAAG AGGTTCTGTC ATTATTAAAT GAGGCACGAA ATAAAGCTGC	19500
TGAAATTATT CAGTCAAATC GTGAAACTCA CAAGTTAATT GCAGAAGCAT TATTGAAATA	19560
CGAAACATTG GATAGTACAC AAATTAAAGC TCTTTACGAA ACAGGAAAGA TGCCTGAAGC	19620
AGTAGAAGAG GAATCTCATG CACTATCCTA TGATGAAGTA AAGTCAAAAA TGAATGACGA	19680
AAAATAACCC TGAGAGAGGC TGGAGCCTCT CTTTTTTGTG CAGTTTAGGA GCTAAAGGGA	19740
ACAGAATGGA GAAATGGAA CAAATGTGTT TTCTAATCTG TTAGACTGTA TCTAGAAAGG	19800
GGAAATTAT GATTAAAGAA TTGTATGAAG AAGTCCAAGG GACTGTGTAT AAGTGTAGAA	19860
ATGAATATTA CCTTCATTTA TGGGAATTGT CGGATTGGGA GCAAGAAGGC ATGCTCTGCT	19920

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TACATGAATT GATTAGTAGA GAAGAAGGAC TGGTAGACGA TATTCCACGT TTAAGGAAAT	19980
ATTTCAAGAC CAAGTTTCGA AATCGAATTT TAGACTATAT CCGTAAACAG GAAAGTCAGA	20040
AGCGTAGATA CGATAAAGAA CCTATGAAG AAGTGGGTGA GATCAGTCAT CGTATAAGTG	20100
AGGGGGGTCT CTGGCTAGAT GATTATTATC TCTTTCATGA AACACTAAGA GATTATAGAA	20160
ACAAACAAAG TAAAGAGAAA CAAGAAGAAC TAGAACGCGT CTTAAGCAAT GAACGATTTC	20220
GAGGGCGTCA AAGACTATTA AGAGACTTAC GCATTCTGTT TAAGGAGTTT ACTATCCGTA	20280
CCCACTAGTA AGTCATGCAA AAAAAATGAA AAAAATTAGA AAAAGTAGTT GACAAAGTTT	20340
GAAAAGGCTG TATAATAGTA AGAGTTGAAA ATAACAATC AGGTCCGTTG GTCAAGGGGT	20400
TAAGACACCG CCTTTTCACG GCGGTAACAC GGGTTCGAAT CCGGTACGGA CTATGGTATG	20460
TTGCGTCAGG ACCACTTGAT GAAAAAAGT TTAaaaaaac TTAaaaaatct TCAaaaaagt	20520
GTTGACAAGC GAAAGCAGTT GTGATATACT AATATAGTTG TCGCTTGAGA GAAGCAAGTG	20580
ACAAAGACCT TTGAAACTG AACAAGACGA ACCAATGTGC AGGGCGCTAC AACGTAAGTT	20640
GTAGTACTGA ACAATGAAAA AAACAATAAA TCTGTCAGTG ACAGAAATGA GTAAGAACTC	20700
AAACTTTTTA ATGAGAGTTT GATCCTGGCT CAGGACGAAC GCTGGCGGCG TGCCTAATAC	20760
ATGCAAGTAG AACGCTGAAG GAGGAGCTTG CTTCTCTGGA TGAGTTGCGA ACGGGTGAGT	20820
AACGCGTAGG TAACCTGCCT GGTAGCGGGG GATAACTATT GGAAACGATA GCTAATACCG	20880
CATAAGAGTA GATGTTGCAT GACATTTGCT TAAAAGGTGC ACTTGCAATCA CTACCAGATG	20940
GACCTGCGTT GTATTAGCTA GTTGGTGGG TAACGGCTCA CCAAGGCGAC GATACATAGC	21000
CGACCTGAGA GGGTGATCGG CCACACTGGG ACTGAGACAC GGCCAGACT CCTACGGGAG	21060
GCAGCAGTAG GGAATCTTCG GCAATGGACG GAAGTCTGAC CGAGCAACGC CGCGTGAGTG	21120
AAGAAGGTTT TCGGATCGTA AAGCTCTGTT GTAAGAGAAG AACGACTGTC AGAGTGAAAA	21180
GTTCACTG TGACGGTATC TTACCAGAAA GGGACGGCTA ACTACGTGCC AGCAGCCGCG	21240
GTAATACGTA GGTCCCAGC GTTGTCCGGA TTTATTGGGC GTAAAGCGAG CGCAGGCGGT	21300
TAGATAAGTC TGAAGTAAA GGCTGTGGCT TAACCATA	21338

(2) INFORMATION FOR SEQ ID NO: 21:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 6273 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 21:

TGTTTTTAAA GAGCCGTGTC TGGATAGACT TTCGGACGCA ACGCTCTATT AGATAATGAA	60
CTGCCTATAC ACAAGATTTC TAACCTTAGT CGACATGAGC TGAAACCTCT TATTTGTTAA	120
GTAGTTCACA AAATATTATA CACCTATTTT ATGAATAGTC AACTGTCTTT ACAGTAAAT	180
TTTAGAAAAAT CATGAAAATT TTCTCTTTCT TTCCATTTTA AGTGACATTC AGTCATTCTC	240
ACATCAAAAA AGCCCAGACG AAATTGTCTG AGCATTCTTT TATCTAGTCG TTTAAGGAAG	300
TTGAGTTCAG TATGTTTAAA GTCTCTGTCC CATCATTTCT TCAACAAACC TTGTTCTTGG	360
AGAAACTCCT TGGCTACTTG CTTTGCTGAC TTGCCTTCAA CACCGACTTG GTAGTTGAGC	420
TGGCTCATCT GGCTTTCTGT AATCTTACCA GCCAATGTAT TAAGAACTCT TTCCAACCTCT	480
GGGTGTTTCT TGAGAAGAGC TTCTTTCATG AGTGGAGCCC CTTGATAAGG TGGGAAGAGT	540
TGCTTGTCAT CTTCCAAGAC CTGTAAATCA TAACGCTCCA ATTCCGCATC AGTCGAATAG	600
GCATCCGTGA TTTGAATATC CCCTGACTGA ATAGCCTGAT AGCGAAGGGC TGGCTCAATG	660
GTCGCTACAT TGAGATTGAG ACCATACATT GATTGCAAGC CCTTATTTCC ATCTTCACGG	720
TCGTTAAACT CGAGTGTAAG ACCTGCCTTC AACTGCCCTT CCACTTTTTT CAAGTCTGAA	780
ATGGTCTTCA AGCCATATTC TTGAGCAATC TTTTTCGGAA CAGCTACAGC ATAGGTGTTT	840
TGATAAGACA TGGGTTTGAG ATAGGCTAGA TGATCCTGCT TAGCAATGCC ATCAGCGCCC	900
ACCTGATAAA CCTGTTCTGG TTCATGACTC ACCTTGGGTG ATGGTTGAAG CAAACTTTCA	960
GTCACCGTAC CAGTAAATTC AGGATAGATG TCAATATCGC CTTTTTTCAG AGCTTCATAA	1020
AGGAAGCTTG TCTTCCCAA ATTCGGTTTA ACAGTCGCAG TCATGCTGGT ATTTTCTTCA	1080
ATCAGCAACT TATACATATT GGCCAAAATT TCTGGTTCTG GACCTATTTT CCCAGCAATA	1140
ACCAAGTTTT CTTCTCTTT TTGAACCAA AGAGCTGGAC TATAAGACAG ACCCAGTAAT	1200
AAAGCCACCA AGGCAAAACC TGAGAAAATC GTCCGTAATT TTGCTTTTTT CATCACTTTT	1260
AGTAGGAAGT TAAAGGCAAT GGCTAGCACT GCAGAAGAAA GTGCCCAAT CAAAATCAAA	1320
CTGGCATTAT TACGGTCAAT TCCCAAAAGA ATAAAGGAAC CTAGTCCCCC TGCACCAATC	1380
AAGGCCGCCA AGGTGCGGT ACCGATAATC AAAACAGCTG CCGTCCGAAT CCCAGACATG	1440
ATAACAGGCA TGGCGAGTGG AATTTCAAAT TTCTTGAGAC GTTCCCATCT GGTCAATCCA	1500
AAGGCAATCC CAGCCTCTTG CAGGTTCGGA TCAATCCCT TCAGCCCAGT GATAGTATTT	1560
TGCAAAATAG GGAAAATCGC ATAAATCACT AGAGCTGTCA AAGCCGGCAA GGTCCCAATT	1620
CCCATCAAAG GGATAAAGAG CCCCAACAAG GCCAGAGACC GGATGGTCTG GAAAATACCT	1680
GCAATCTGCA AGACCCAGTC GGCCAGCTTC TCATGATAGC GAAGAAAAAC AGCCAAGGGA	1740

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ATCGCAAGCA AAATAGCTAG TAACAAGGTC AAAAGCGACA ACTGCAAATG TTGAGATAGA	1800
GCTGTCAACC AATCACTAAA ACGATCCTGA AAAGTTGCAA TTAAATTAGT CATGAACACT	1860
ACCTCCAAAC AAGTCTGCTA CAAAGTCTGT TGCAGGCGCT TTAAAAATTG TCTCGGGATT	1920
CGCTACCTGG CGAATTCTC CATCCTGCAA GACAGCAATA CCGTCCGCCA ACTTCAAGGC	1980
TTTCATCCGTA TCATGGGTTA CAAAAATCGT TGTTCATCCCA AACTCTTTAT GCAATTCCTT	2040
TGTCAGAACC TGCAACTGTT TTCTCGAAAT AGCATCCAAG GCCGAAAAGG GTTCATCCAT	2100
GAGGAAAATC TTGGGCTGAC CAATCATAGC TCGGACAATA CCGACCCGTT GCTGTTCTCC	2160
ACCAGATAAT TCACTAGGTA AGCGATGCCC ATACTCGGCT ACTGGTAAAC CAACCTTAGC	2220
CAAAAGCTCT TCTGTTTCT TCGTAATTTC TTCTTGCTC CACCCCTTCA TTTCAGGAAT	2280
GAGAGCAATA TTTTCCGCAA CTGTTAGATT TGGAAAAAGA GCAATAGCCT GTAAACATA	2340
ACCAGTAGAA AGACGAAGTT CACGCTCATC ATAGTCTTTG ATGCGCTTCC CATCCATATA	2400
AATATTTCCT TCAGTTGGTT CCAAAAGACG GTTAATCATC TTGAGCATGG TCGTCTTACC	2460
TGACCCAGAA GGCCCTACTA AAACCATAAA TTCCCATCC TCAATCTGTA AGTTGACATC	2520
TCTCAAGACA TCCTTTTCTG TGTAGCGCAG TGCTACATTT TTGTATTCAA TCATTCTTTG	2580
TCCTCAATTT AAAACTTCCC TCGATTGGTC AAGTCTTCTA CCTTAGGCAT AACTTCCTTA	2640
TTATCCCAAT GCTCCACAAT TTTCCCGTTC TCTAAACGGA AGATATCGTA CTGGGCATAA	2700
GCAACGCCAT CAATCTGAGT CTGACCATAG CTAACCACAT AGTTTCCTTG TCCTAAGAGT	2760
TGGAAAACAA AGTCAAAAGT GACACTATAT TCAGCCACAT AGTTTTTATA AGCAGCACTT	2820
CCTTGTCCTA TATCATGATT ATGCTGAATC AAATCGTCTG CCACATAATC ACTCCACTGC	2880
TCTAGCTCCC CATTTTGGAA AATTTCTCTC AAGAAACGGC GACCCAGCTT TCTATTTCTT	2940
GCTTTCTTAT CCAAACTCCTT GATTTCAAAA TCTCCAAAAA TTTGATCTAG TTGGTCATTT	3000
TCAGGTGTTT GATAGTAGTC AATGACATCC CAATGCTCAA CAATACAACC ATTCTCATCC	3060
TCACGGAAAG TATCCGTCGT CACCCATTGA GCTTCTCCAC CATTGAGATA TTGATGAACA	3120
TGAACAAAGA CCAGATTGCC ATCCTCAATG GTGCGGACAA TCTTAATCTG ACGCTCTGGA	3180
TGACGCTCAA AGAAATCTGC AAAGAAGGCT GCAAATCCTT CTTTCCCGTC AGGAACACCT	3240
GTGGAATGTT GGATATAGGT ATCCCTTACA GACTGGGCTT GAGCCTCAGC AACTCGTCCG	3300
TCTTGAATGG CATGGATGTA TAGGTTGTGA GCATTTTCA CTTGTTGTGA CATATTCTAA	3360
ACCTCATTTT CTTCTCTTT CAGATTCGCC AAAATTCTTT CTTGAAAACC TTCAAAATTGG	3420
TGAATTTCTT CCTCTGAAAA TCCTTTGTAA AAGATAGTAT CCAATTTCTG ACTGACACGA	3480

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TGCCCCACTT	CTTCTGGGA	CTTGCCTAAC	TCCGTTAAAA	CTAAATACTT	CTTACGCTTG	3540
TCTTTTCCAC	ACGGACTAAC	AATTACAAGC	TTTGTTCCT	CTAGCTTTT	TATCATAGTC	3600
GTCAGCGTAT	TATTCGCAAG	TCCAGTCGCA	AGCGCGATAT	CTGTCGCAGT	TGCGCAGCCA	3660
GTTTCACTAT	TCCATAAAAC	CGCTAAAATC	TTGCCCTGTT	CACCCCTATA	AAGAGCCTCA	3720
GGATCTTGAC	TCAGTAACTT	TTGAAAAATC	CGCCCATTC	ACAAACGAAT	ATGATGGGCT	3780
AGCAAATGAC	CATCTTTCAT	AACACCTCCA	ATTTATTTTCG	ATATCGAAAT	GAATAAAACA	3840
ATTGTAACAC	TCATCGTTCT	AACTGTCAAC	TATTTTCGATT	TAGAAATAAT	TTTGTGATAAT	3900
TATCCACACC	ACCATACTCC	GGCTCAACTA	ACTTTTAACG	AGAGTTTCTA	AACTCCTTCG	3960
TCCTCCAGTC	TACAAAAGCC	TTCCATTTCG	ACTATCCTAT	ATTTTATGAG	GGGACACATT	4020
TTTCCTATCA	GACCATTTAT	TTTAAAGATA	GAAGTAAATC	ATAATTGCTT	CCATCTGTTC	4080
TTTTATAGTA	TATTGAAGTT	AGACTAGAGC	ACTGTATCTT	CTAAAACATT	GATAGAAAGC	4140
GATTTGAATT	TCCCAATCAA	TTTGTTCGTA	TTTATAGCAT	TTCGAAACTG	GAATAGGACA	4200
CCATGACTGC	TAAAAGATTT	CTATAAATTC	ATTTAATTTT	CTCAATCAAT	TTGTTCATAT	4260
CTTATTTTCAT	TCCGCTATAA	TTTCACCTTA	CCCTATCTTT	TTCTAGCAC	CCTTCAAACA	4320
GCCTATCCCC	TACCGTTTGA	CGATTCTCTA	CTTCGCTCCA	CTTCCATTAC	AGAAGTTTCT	4380
TCACTACTAT	GGGCTCGGCT	GACTTCTCAT	GATTCCTTGT	TACTACTATT	TGAACGCTCA	4440
CGAGATAGAT	CTTACAAAAA	ATGCTTTGAT	CCACAATGGA	ATCAAAGCAT	TTTAAAGAGT	4500
TCCTCATACA	TAAGCGCAGA	AGTCGCAGTT	CCTCTGTACT	TGGCTTCTTC	TCTTTTGACA	4560
AAGCGAGCCA	AGTTGAGCAA	CTCAGGTGCT	GGATGTTTGG	GATTTAGGAG	CAATTCACGA	4620
TTGACCAGGC	CTGAGAGACG	AACTGCTCTG	AATTGCTCAT	TTGTAGTAGG	CAGTTTTTTA	4680
GTAGTCTCTA	GGAGAGCAGC	AACTAAATCT	TCACTCAAAT	CATGTCGAGC	ATGATTGTAA	4740
AGATCTTTTA	TAAGGCTTTC	TAGGTTTGGT	TCTACCATCC	CTACCACCTC	CCTTATGGTT	4800
TAATAATGTT	TAATCAAATC	AACCGTTGAA	CGATCCAATT	TCTTCACCAA	GGCTTGTAAG	4860
AAAGCTTGCG	CTTCTAGGAA	GTATCCATT	GCATAGAGGG	TTTGGTGAGA	ATGGATATAA	4920
CGAGCGCAGA	CACCGATAGT	TGTTGATGGG	ACACCACCAT	TTTTCAGATG	AGCTGCACCT	4980
GCATCTGTTC	CGCCTTTACC	ACAGTAGTAT	TGGTACTTGA	TACCAGCTTC	TTCAGCCGTT	5040
GTCAAAGGA	AATCCTTCAT	CCCTGGGAGA	AGCAAGTGAC	CTGGATCATA	GAAACGAATC	5100
AAGGTTCAT	CTCCAATCTT	GCCTTGACCA	CCGTAGACAT	CACCTGCTGG	TGAGCAATCA	5160
ACTGCGAGGA	AGACTTCTGG	GTCAAATTC	GTTGTAGAGG	TATGAGCGCC	ACGCAGACCA	5220
ACTTCTCTT	GGACGTTAGA	ACCCAGATAG	AGTTCATTGC	CGAGTTTTTG	ACCCGATAAA	5280

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GCTTCAGCTA GCTCGCTTAC CATGAGGACA CCGTAGCGGT TATCCCAAGC TTTTGAGATG	5340
ATATTTTTTT CATTTGGCTGT CAAAATTGCA GAACTATCTG GTACAATGGT ATCACCAGGA	5400
CGGATGCCAA AACTTTCTGC CTCAGCCTTG TCCGCAAAAC CACCATCAAA AACGATATCG	5460
GCAATGGCTG GCATGGTTGG TCCCCCTTT CCACGAGTCA AATGCGGAGG AACAGAACCT	5520
GAAATCACAG GAATTTTCATG ACCATCACGA GTCAAGAGTT TGAAACGTTG GCTGCTAACC	5580
ACCATGGGGT TCCAGCCACC GATTTCTACG ACACGGAAGG TACCATCTGG CTTGATTTTCG	5640
CTGACCATAA AACCAACTTC GTCCATATGA GAAGCGACCA AGACGCGCGG TGCATCCACA	5700
GCTTCTGAAT GTTGATACC AAAAATACCA CCCAAGCCAT CTGTCACCAC TTCATCCACA	5760
TGCGGTGTCA ACTTTTCACG AAGATAAGCA CGGACAGGCG CTTCATGACC TGAGACTGCA	5820
GCAAGTTCTG TTAATTCTTT AATTTTTGAA AATAATGTTG TCATTTCACT TCCTTCTTTC	5880
TTTCATCCAT TTTACCACTT TTTATAGGAG AAGGATAGTG GGAAGGTGGA TTTCTAAGTT	5940
AGTATCTTAG TCCTGCTCTA TCTTAGAAAA GGATAGTATT CTCTTGCATG TAGTGCAAAA	6000
TCTAGTAAAC ATTCCAAAAT TAACTCGAAT ATTTATTTCC AAACAAAAAA ACAATACACC	6060
ATCAAAGTTC TTTGGATTTT TCATGAAATT TACAGAAAAT AGTTGACTTC CCTTTCTTCT	6120
TTCTTTAAAT ATATAGTTGG TTGAGTTTGG AATAGTACGC TGTAGCTGCT AAAACATTTT	6180
TAGAAATTAA TTTGACTTTC CTAATAGAGT TGTTCATATC TTATTTCAAT TTAATATAGT	6240
ACAAAACCTAG AAAAGGAAAA AATCATGACC AGG	6273

(2) INFORMATION FOR SEQ ID NO: 22:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 28171 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 22:

ACAACCTTTT TCAAAAACCTC ACCTTGGTAC GGAGATGTTT TGCTTTCTGC TATTATTTTC	60
GGTTATATTC ATATCAATTT TGCTTTAACT CCTCTTGCTT TTTTCATTTA TGCTAGTGGA	120
GGTCTTATTT TAGCTCTATT GTATCGCATG ACTAAAAATC TCTACTATCC AATACTAGTT	180
CATATTCTCA TTAATATCAC TGCCTTCTGG GATGTGTGGT TGCTCCTATT TTCAGGAAGT	240
TAGCTTACTA AAATAATGTC GGAACTTTCC GGCATTTTCT TTTTTCACAA ATAGTCAACG	300
TTTTTCTTTT CGATATTGTA GTGGTGTGTA TCCAGTTATT TTTTGAATT GATTTTGAAA	360



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ATAAGGTTGA CTTGAGAAAG GCAGATAGTG AAGATAGTTA AGAAGAATAG GATGTTCTTT	420
TTTCCTTTTT GGAAAACTTC TAAAATATGG TATAATGAAA AGATAAAGAA GTTGGGGGTA	480
GAAGATGAAC ATTCAACAAT TACGCTATGT TGTGGCTATT GCCAATAGTG GTACTTTTTCG	540
TGAAGCTGCT GAAAAGATGT ATGTTAGTCA GCCGAGTCTG TCTATTTCTG TTCGTGATTT	600
GGAAAAAGAG TTGGGCTTTA AGATTTTCCG TCGGACCAGC TCAGGGACTT TCTTGACCCG	660
TCGTGGGATG GAATTTTATG AAAAATCGCA AGAATTGGTT AAAGGATTTG ATATTTTTC	720
AAATCAGTAT GCCAATCCTG AAGAAGAAAA AGATGAATTT TCTGTTGCTA GCCAGCACTA	780
TGACTTCTTG CCACCAACTA TTACGGCCTT TTCAGAGCGC TATCCTGACT ATAAGAACTT	840
CCGTATTTTT GAATCAACTA CTGTTCAAAT ATTAGATGAA GTGGCGCAAG GGCATAGTGA	900
GATTGGGATT ATCTACCTCA ACAATCAAAA TAAAAAGGGG ATTATGCAAC GGGTTGAAAA	960
ATTAGGTCTG GAGGTCACTG AATTGATTCC TTTCCATACC CATATTTATC TCCGTGAGGG	1020
TCATCCTTTA GCCCAGAAAG AGGAATTAGT CATGGAGGAT TTAGCGGATT TACCAACGGT	1080
TCGTTTCACT CAAGAGAAAG ACGAGTACCT TTATTATTCA GAGAACTTTG TCGATACCAG	1140
CGCTAGCTCA CAGATGTTTA ATGTGACAGA CCGTGCCACC TTGAATGGTA TTTTGGAGCG	1200
GACGGACGCC TATGCGACAG GTTCTGGATT TTTAGATAGT GACAGTGTTA ATGGCATTAC	1260
AGTTATTCGT CTCAAGGATA ACCTAGATAA CCGCATGGTC TATGTTAAAC GTGAAGAAGT	1320
GGAGCTTAGT CAAGCTGGGA CTCTCTTCGT AGAAGTCATG CAAGAATATT TTGATCAAAA	1380
GAGGAAATCA TGAAAAAAG AGCAATAGTG GCAGTCATTG TACTGCTTTT GATTGGGCTG	1440
GATCAGTTGG TCAAACTCCTA TATCGTCCAG CAGATTCCAC TGGGTGAAGT CGCCTCCTGG	1500
ATCCCCAATT TCGTTAGCTT GACCTACCTG CAAAATCGAG GTCCAGCCTT TTCTATCTTA	1560
CAAGATCAGC AGCTGTTATT CGCTGTCATT ACTCTGGTTG TCGTGATAGG TGCCATTTGG	1620
TATTTACATA AACACATGGA GGACTCATTC TGGATGGTCT TGGGTTTGAC TCTAATAATC	1680
GCGGGTGGTC TTGGAACTT TATTGACAGG GTCAGTCAGG GCTTTGTTGT GGATATGTTT	1740
CACCTTGACT TTATCAACTT TGCAATTTTC AATGTGGCAG ATAGCTATCT GACGGTTGGA	1800
GTGATTATTT TATTGATTGC AATGCTAAAA GAGGAAATAA ATGGAAATTA AAATTGAAAC	1860
TGGTGGTCTG CGTTTGGATA AGGCTTTGTC AGATTTGTCA GAATTATCAC GTAGTCTCGC	1920
GAATGAACAA ATTAAATCAG GCCAGGTCTT GGTCATGGT CAAGTCAAGA AAGCTAAATA	1980
CACAGTCCAA GAGGGTGATG TCGTCACTTA CCATGTGCCA GAACCAGAGG TATTAGAGTA	2040
TGTGGCTGAG GATCTTCCGC TAGAAATAGT CTACCAAGAT GAGGATGTGG CTGTCGTTAA	2100
CAAACCTCAG GGAATGGTTG TGCACCCGAG TGCTGGTCAT ACCAGTGGAA CCCTAGTAAA	2160

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TGCCCTCATG TATCATATTA AGGACTTGTC GGGTATCAAT GGGGTTCTGC GTCCAGGGAT	2220
TGTTCAACCGT ATTGATAAGG ATACGTCAGG TCTTCTCATG ATTGCTAAAA ACGATGATGC	2280
GCATCTAGCA CTTGCCCAAG AACTCAAGGA TAAAAAGTCT CTCCGCAAAAT ATTGGGCGAT	2340
TGTTTCATGGA AATCTACCTA ATGATCGTGG TGTAAATTGAA GCGCCGATTG GCCGGAGTGA	2400
AAAAGACCGT AAGAAACAGG CTGTAAGTGC TAAAGGGAAG CCTGCAGTGA CGCGTTTTC	2460
CGTCTTGGAA CGCTTTGGCG ATTATAGCTT AGTAGAGTTG CAACTGGAGA CAGGGCGCAC	2520
TCATCAAAATC CGTGTCCACA TGGCTTATAT CGGCCATCCA GTCGCTGGTG ATGAGGTCTA	2580
TGGTCCTCGC AAGACTTTGA AAGGACATGG ACAATTTCTT CATGCCAAGA CTTTAGGTTT	2640
TACTCATCCG AGAACAGGTA AGACCTTGA ATTTAAAGCA GATATCCCAG AGATTTTAA	2700
GGAAACCTTG GAGAGATTGA GAAAGTAAGA ATGAAAAAGA AATTAAGTAG TTTAGCACTT	2760
GTAGGCGCTT TTTTAGGTTT GTCATGGTAT GGGAAATGTT AGGCTCAAGA AAGTTCAGGA	2820
AATAAAATCC ACTTTATCAA TGTTCAGAA GGTGGCAGTG ATGCGATTAT TCTTGAAAGC	2880
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GGGGACGTGT CACAGAGGTT CGTAAGGACT TGGGTGTCTT TGTGGATACA GGCCTTCCTG	16560
ACAAGGAAAT CGTTGTGTCA CTCGATATTC TCCCTGAGCT CAAGGAACTC TGGCCTAAGA	16620
AGGGCGACCA ACTCTACATC CGTCTTGAAG TGGATAAGAA AGACCGTATC TGGGGCCTCT	16680
TGGCTTATCA AGAAGACTTC CAACGTCTTG CTCGTCCTGC CTACAACAAC ATGCAGAACC	16740
AAACTGGCC AGCCATTGTT TACCGTCTCA AGCTGTCAGG AACTTTTGTT TACCTACCAG	16800
AAAATAATAT GCTTGGTTTT ATTCATCCTA GCGAGCGTTA CGCAGAGCCA CGTTTGGGGC	16860
AAGTATTAGA TGCGCGCGTT ATTGGTTTCC GTGAAGTGGA CCGCACTCTG AACCTCTCCC	16920
TCAAACCACG CTCCTTTGAA ATGTTGGAAG ACGATGCTCA GATGATTTTG ACTTATTTGG	16980
AAAGCAATGG CGGTTTCATG ACCTTAAATG ACAAGTCATC TCCAGACGAC ATCAAGGCAA	17040
CCTTTGGCAT TTCTAAAGGT CAGTTCAAGA AAGCTTTAGG TGGTCTTATG AAGGCTGGTA	17100
AAATCAAGCA GGACCAGTTT GGGACAGAGT TGATTTAGGG AGGCTTATGA GAAAATCATT	17160
TTACACTTGG CTCATGACCG AGCGCAATCC TAAAAGTAAC AGTCCCAAAG CAATTTTGGC	17220
AGACCTCGCT TTTGAAGAGT CAGCCTTTCC AAAACACACA GATGATTTTG ATGAGGTCAG	17280
TCGCTTTTGG GAGGAGCATG CCAGTTCTC TTTTAACCTA GGAGATTTTG ACAGCATTTG	17340
GCAGGAATAT CTAGAACACT AGCATTTATT CATTGGGTTT GGGCTAGTAA TTTCTCCATC	17400
CCTCTGCTAT AATAAAAAGA AATAAAAGGA TTAGAGAGGT TCTTTATTTG AAGGAACATT	17460
CAATAGACAT TCAACTGAGT CATCCAGATC ACCTGTTTCA TCTTTTGGT TCGAATGAAC	17520
GCCATCTTCG TTTGATGGAA GAAGAGCTTG ATGTTGTGAT TCATGCTCGT ACGGAGATTG	17580
TCCAGGTTTT GGGAGAAGAG TCTGCCTGTG AGGAAGCCCC TCAAGTTATT CAGGCTTTGA	17640
TGGTCTTGGT AAATCGTGGG ATGACCGTTG GTACGCCAGA TGTAGTCACT GCGATTAGCA	17700
TGGTCAAAAA TGATGAAATT GACAAGTTTG TCGCCCTTTA CGAAGAAGAA ATTATCAAGG	17760
ATAATACTGG GAAACCTATC CGTGTCAAAA CCCTAGGGCA AAAGCTTTAT GTGGACAGTC	17820
TCAAACAGCA TGATGTGACC TTTGGAATTG GGCCAGCAGG TACAGGGAAG ACCTTCCTTG	17880
CAGTGACCTT GGCAGTGAAT GCCCTTAAAC GTGGGCAAGT CAAGCGAATT ATCCTAACTC	17940
GTCCAGCGGT GGAAGCGGGA GAGAGTCTTG GATTTCTTCC GGGTGATCTT AAGGAGAAGG	18000
TGGATCCTTA CCTTCGTCCT GTTTACGATG CCTTGATCA AATTCTTGGG AAAGACCAAA	18060

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CGACTCGTCT CATGGAGCGT GAAATTATCG AAATTGCGCC CCTTGCCTAT ATGCGTGGCC	18120
GGACCTTGGA TGATGCCCTT GTCATTCTCG ATGAGGCGCA AAACACGACC ATCATGCAGA	18180
TGAAGATGTT CTTGACGCGT TTAGGTTTTT ATTCTAAGAT GATTGTCAAT GGAGATATTA	18240
GTCAGATTGA CCTGCCACGT AATGTCAAGT CCGGTTTGAT TGATGCTCAA GAGAAACTCA	18300
AGAACATCCA TCAGATTGAC TTTGTTTCA TTTCAGCCAA GGATGTGGTT CGCCATCCTG	18360
TTGTCGCTCA GATTATCCGA GCCTATGAAT ATTCTACTGA AGTTGCACAC GACTGATTTT	18420
GAGGAAGTTC GCCTGCAAAA GAATAGACTT GTTCGGTAAC TGTA AAAAGT GTTATACTAT	18480
TTTTATGGAA ACAGTATACG ACAAAGCACA AAAACTTAAC TCAAAAACT TCAAACTATT	18540
GATTGGTGTC AAAAAGGAAA CCTTCAACT CATGCTAGAA CACCTGAATT CAGCCTATCA	18600
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GACCCCTCCGT TACTTGCGAT ATTATCCAC TCAGCGTCTG CTGGCCTTTG ATTTTGCGT	18720
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CTTTTGAGAG AGGAAAATCC AGTTGTATAG GCTAAAGGTT TTATCCAAAG GTCTGAGACA	19380
ACGATTAGGC ACGATGGAAA GAACTTTTAT GTGGCTGATG ACGATCAGTG CATCTTCTG	19440
TGTCATAATC ACAGGGCACA AGAAAGTAGG AATTTGAAAA GATGATTGAC CAACTATCTA	19500
AGTATTACAG TTGTAGGATA CTAAGTAAA AGGATATTCC AAGTATTTTA TCTTTATATG	19560
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CTGTTTTTAT TGGTTTGTAT ATGGTTGATC AAGCCTATCA GAGAAAAGGG ATTGGTAGTC	19800
ATATTGTGAC AGAAGCACTA GCTTATTTTG CTAAGAAGCT TCGAAAGGCA CGTTTGGCTT	19860

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ATGTTAAGGG AAATCCGCAA TCTCAGCATT TTTGGGAAAA GCAGGGCTTT AAATCAATTG	19920
GATGCGAGGT TAAGCAAGAA CTTTATACGG TTGTTATCGC TGAACAGAGC CTAGAAGATT	19980
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TGGCGGCATT <u>TATGACGATC</u> <u>GCTTTT</u> TAGT TAAACCCGTC CAAGCAGTCT TAGATAAGAT	20160
TGACCAATCT TCTTTTGAGT TTCCATACAA AGGTGCCAAA GAAATGATTT GAGTGAAGA	20220
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GCCCAAACCT AAAAAGAAAA AGCAAGGGTG AACGAAGTAA AAAAGAAGTC TGCTAAGGCC	20340
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ACTTGCGAAG TCACCCTTTT CTTTTCAAAA TTTATACTAA ATCATTGATA TCAGTGACT	20640
CACGATTAAG TCCTTGAGCA ACTGGTAGGT TAGTCAAGTA ACCTTGATAA GTAGTCACAC	20700
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CGATATAAGG AAGAGTGACA TTGGTTAGGG CGATGGTTGA AGTGCGAGCA ACCGCACCAG	20820
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TGAATTAGAC ATAAGAGTTT GAATTTGACT TCCAAAGACT TCTTCTAGAA CTGAGAGACG	21120
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ACCACCAAGT AGAACACCAG AGCCACCAGC TTGCTTAGTA AGGAAGTGAG CTCCGATTTG	21300
AACAGCCATA CGACCTGCAA CCTCACTCAT AGGAACGAGG AGCGGTAGTT GTCCTTGATT	21360
GTCACGAACA GTTTCAGTTG TTTTGTCTGT TAACATAGCA TCTGCTAATT CTGGAGCAGC	21420
GGCCATGTGC AAGTAGGTGA AGAGAAGAAG ATCGTCGCGC AAGTAACCGT ATTCAGAACT	21480
TAAAGATTCT TTTACTTTCA CAACCAACTC TGCTGCCCAA GCTTCACCAG CAGTAGCGAC	21540
AATCTCAGCT CCTTGCTTTT GATAGTCAGC ATCAGTAAAG CCAGAACCGA GACCAGCATT	21600

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TGTTTCGATA	AGGACACGAT	GACCACGACT	AACTAAGCTA	TGAACACCTG	CAGGTGTGAG	21560
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CTTTGGATGA	TGCGGAACAA	TGTTTGACTA	TGCCTCGGAC	AAGGGTAATA	CACGTTACAC	22020
TTTTCCAACC	AATCAAAGCT	TGGAAGAAAC	CAAGAATAAC	ATTGCTCAGT	TCTACTTGGC	22080
TAATCCCTTG	GGACGTTGGG	GAATAGAACT	AAAAAGCAAT	GGTCAGTTTA	TTGGAACCAT	22140
TGACTTGCAC	AAGATTGATT	CTGTTCTTAA	GAAGGCAGCT	ATTGGCTACA	TTATCAATAA	22200
AAAGTATTGG	AATCAAGGAT	TAACGACAGA	AGCCAATCGT	GCTGTGATTG	AGCTAGCTTT	22260
TGAGAAGATA	GGGATGAATA	AGTTGACTGC	CCTTCACGAT	AAGGCTAATC	CCGCGTCAGG	22320
AAAGGTCATG	GAGAAATCAG	GCATGCGTTT	TTCCCATGCA	GAACCATATG	CTTGTATGGA	22380
CCAGCATGAA	AAAGGCCGAA	TGCTGACAAG	AGTTTATTAT	GTCTTGACCA	AGGAAGACTA	22440
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AATAATCTAA	GAGAGGAGAA	AATATGGAAG	CAATTATCGA	GAAAATCAAA	GAGTATAAAA	22560
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CTCCACAAAC	ACCTGTCAAA	GAGACGAATT	TGCAGGCTGA	AGTTGCAGCT	GTTCCTCAAGG	22680
ACTCATCGAC	CGAAAAGGAA	GTGAAGAAGG	AAGAAAAGGA	AGAACCCTTT	GAACAAGATC	22740
TAATCACAGT	AGATGTCAAA	GGTGTCTGTA	AATCGCCAGG	GATTTATGAC	TTGCCTGTAG	22800
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AGAAGGTCAA	TCTCAACAAG	GCCAGTCTGG	AAGAACTCAA	GCAGGTCAAG	GGACTGGGAG	23040
GAAAACGAGC	TCAGGACATT	ATTGACCATC	GTGAGGCAAA	TGGCAAGTTC	AAGTCAGTAG	23100
ACGAGCTCAA	GAAGGTCTCT	GGCATTGGTG	GCAAAACAAT	AGAAAAGCTT	AAAGACTATG	23160
TTACAGTGGG	TTAAGAATTT	CTCTATTCCC	CTAATTTACC	TGAGTTTTCT	ATTACTTTGG	23220
CTTTATTACG	CTATTTTCTC	AGCATCTTAT	CTTGCTTTGT	TGGGCTTTGT	TTTTCTGCTA	23280
GTCTGTCTCT	TTATCCAATT	TCCGTGGAAA	TCTGCTGGTA	AAGTTCTAAT	AATTTGCGGA	23340
ATCTTTGGAT	TTTGTTTGT	TTTTCAAAAT	TGGCAACAGA	GTCAAGCGAG	TCAAAATCTG	23400

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GCGGATTCTG TTGAAAGGGT ACGGATTTTG CCTGATACTA TTAAGGTTAA TGGTGATAGT	23460
CTATCCTTTC GTGGCAAGTC TAACGGTCGT GCTTTCOAAG TCTATTATAA ACTCCAGTCC	23520
GAGGAGGAGA AAGAAGCCTT TCAAGCTTTA ACTGACCTGC ATGAGATAGG ACTAGAAGGG	23580
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AAGACTCAGG GAATTTACCA GACTCTCAAT ATCAAAACAA TCCAGTCACT TCAAAAGATT	23700
GGCAGTTGGG ATATAGGAGA AAACCTGTCC AGTTTACGTC GAAAGGCTGT GGTTTGGATT	23760
AAGACGCACT TTCCAGACCC TATGGGCAAT TACATGACAG GACTCTTGCT GGGACATCTG	23820
GACACCGACT TTGAGGAGAT GAATGAGCTT TATTCCAGTC TAGGAATTAT CCACCTCTTT	23880
CCCCTATCTG GCATGCAGGT AGGTTTTTTC ATGAATGGAT TTAAGAACT TCTCTTGCGA	23940
TTGGGCTTGA CCCAAGAAAA GTTGAAATGG CTGACTTATC CCTTTTCCCT TATCTATGCG	24000
GGACTAACTG GATTTTCAGC ATCGGTTATT CGCAGTCTCT TGCAAAAGCT ACTGGCTCAA	24060
CATGGGGTTA AGGGCTTGA TAATTTTGCC TTGACGGTGC TTGTCTCTTT TATTGTCATG	24120
CCAAACTTTT TCTTGACAGC AGGAGGAGTC TTGTCTCTCG CTTATGCTTT TATCCTGACC	24180
ATGACCAGCA AAGAAGGGGA GGGGCTCAAG GCTGTTACTA GTGAAAGTCT AGTCATCTCC	24240
TTGGGCATAT TGCCCATCTT ATCCTTCTAT TTGCGGAAT TTCAACCTTG GTCTATCCTT	24300
TTGACCTTTG TCTTTTCTTT TCTTTTGTAC TTGGTCTTCT TACCGCTCTT GTCTATCTTA	24360
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CCACTGGAAA ATGAAATCAC CATGCTGGAT GTGGGGCAAG GAGAAAGTAT TTTCTACGGG	24660
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TCAAAAGTCS AGGAGTAGCT AAGATTGACC AGCTAATTTT GACTAACACG GACAAGGAGC	24840
ATGTTGGAGA TTTGTCAGAG ATGACCAAGG CTTTCCATGT AGGGGAGATT CTAGTATCAA	24900
AAGACAGTCT GAAACAGAAG GAATTTGTGG CAGAACTACA GGCGACTCAA ACAAAGGTGC	24960
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CAAGGAAAAAT GGGAGATGGA GGACACGATG ATACCCTAGT TCTGTATGGG AAATTCTTGG	25080
ATAAGCAATT TCTCTTCACG GGAAATTTGG AGGAGAAAGG AGAGAAGGAC TTGCTGAAGC	25140

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ACTATCCAGA CTTGAAAGTA AATGTTTTGA AAGCTAGCCA ACATGGCAAT AAAAAATCAT	25200
CAAGTCCAGC CTTTCTAGAA AAAGTCAAAC CAGAGCTTAC TCTTATCTCA GTTGGAAAGA	25260
GCAATCGAAT GAAACTCCCC CATCAGGAAA CATTGACACG ACTGGAAGGT ATCAATAGCA	25320
AAGTTTATCG AACTGACCAG CAAGGAGCTA TACGTTTTAA GGGGTTGGAT AGTTGGAAAA	25380
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GACAGCTATT CTGAGTATAA AGTTGGCGGA GGCTGGAACT ACGCTCGTTA TGAGGTCATA	25740
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CCTTTAAAAA GGGTAGGGTT TATGGTCTTC TTGCTATCAA TGGCTCTGGA AAGACGACCC	25920
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TTCTCTTAT CAAAAACATC TGGAAATCAG GTCTGAACTT GAGGGATGAA ATCGCCTATT	26100
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GCTTGGTGAT TGCCATGTAT TTCCTCACTC AGGCCAAATG CTGGCTCATG GATGAGATTA	26220
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TTGTATCTGT ACTCGGTGTT ACCTTTTATT TAAATAGTCA GACTGCAAAC TCACACAGCT	26520
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AGAAACTCTC CCAAATGTCT GATACCAGCT CGGAGGAATA CCAGTTTGCT AAAAAATATT	26640
TAGACGTGCA AAAAAATCTT TTGACGCGAA AGACAGAAAT TCTGACTTTA TTAAGAAGAG	26700
GCGCTGGAA AGAAGCCTAC TATTTGCAGT GGCAAGATGA AGACAAGAAT TATGAATTTG	26760
TATCAAATGA CCCGACTGCT AGCCCTGGCT TAAAAATGGG GGTGACCGC GAACGGAAGA	26820
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GGATTGATCA GATTGTCTGG ATTTTAGAGG TTATCATCCC AAGTTTGTTC GTGGTTGCTA	26940

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TTATTTTAT GCTAACACAA CTATTTGCAG AAAGATATCA AAATCATCTG GACACAGCTC	27000
ACTTATATCC TGTTCAAAA GTGACATTTG CAATATCCTC TCTTGGAGTT GGAGTGGGAT	27060
ATGTAACGTG GCTGTTTATC GGAATCTGTG GCTTTTCTTT TCTAGTGGGA AGTCTGATAA	27120
GTGGTTTTGG ACAGTTAGAT TATCCCTACC CAATTTATAG CTTAGTGAAT CAAGAAGTAA	27180
CTATTGGGAA AATACAAGAT GTATTATTTT CTGGCTTGCT CTTAGCTTTC TTAGCCTTTA	27240
TCGTCAATTCT GGAAGTTGTG TACTTGATTG CTTACTTTTT CAAGCAAAAA ATGCCTGTCC	27300
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GCCTGGCCCT ACGGATGAAA AGTTTCGAAG AAACGCTATC ATAACGTGGG GGCTTGATA	27840
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CAAGACTTAT TCATCAATGA TGAGATTCGT GTACGTGAAG TTCGCTTGAT TGGTCTTGAA	27960
GGAGAACAGC TAGGTATCAA GCCACTCAGT GAAGCGCAAG CTTTGGCTGA TAACGCTAAT	28020
GTGACCTAG TATTGATTCA ACCCAAGCC AAACCGCCTG TTGCAAAAAT TATGGACTAC	28080
GGAAGTTCA AATTGAGTA GGAAGAGAG GAAAGAGAG AAGCTAAAA AAAAACTT	28140
GTTACTGTGA AAGAAGTTCG TCTAAGTCCG G	28171

(2) INFORMATION FOR SEQ ID NO: 23:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 7147 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 23:

CCGCTCAACT TTTGCAATCA AGGCTAAGTA GACAGCAGCA AATTTCATAT TGTATAATTT	60
CTGACTCATA CTTCTCTCTT TCTATGTGTA CTAGTATAAA TAAGAAAAAG AAGGCCGTCA	120



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AGCCTTCTTT TGATTATTTC TTCTGCTTCA TCTTCTGTAA ATTGACTATT GTACAAGTCA	180
GCGTAGAAGC CACCTTGCGC CATCAGTTCC TCATAGTTGC CTTGCTCGAT GATATTTTCCA	240
TCTTTTCATGA CCAAGATCAA GTCTGCATTT CGGATGGTTG ACAAGCGGTG GGCAATGACA	300
AAGGATGTGC GTCCTTCCAT CAAACGGTCC ATGGCTTTTT GGATCAATTC CTCTGTCCGT	360
GTGTCAACAG AAGAAGTCGC CTCATCCAAA ATCAAAAGCG GTGCATCCTT AAGAAGGGCA	420
CGAGCAATAG TCAATAGTTG TTTTGTCTT ACAGACAAGG TCACGGTGTC ATCCAAGATG	480
GTATCATAGC CATCTGGCAA GGTGATAATA AAGTGGTGAA TTCCACAGC CTTACTAGCT	540
TCCATCATTC GTTCATCACT AATCCCTATT TGATTATAGA TGAGATTGTC TCGAATAGTT	600
CCTTCAAAGA GCCAGGTATC CTGCAAGACC ATTGAAAAGG CATCATGCAC TTCTGAACGC	660
GTCATAGCCT TGGTATCCAC ACCATCAATG CGAATACTTC CCTTATCAAT CTCATAGAAT	720
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AGAATTTCTC CTGCTGACAC GTCGTAGAAA CGTGGAAATCA GATTGACCAG AGTTGATTTA	900
CCAGAACCTG TTGACCCAAT AAAGGCCACT GTTTGACCAG TTTCTGCTTT AAAGCTAACA	960
TGTTCAATAA CTGCCTCCGA ATTTGCCGCA TAGCGGAAGG TCACATCCTT AAACCGSACC	1020
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AAATCTAAAA CTTGATTAAT CCGCTTAGCA GAGACCATAG TTCGGGGAAG AACCATGAAG	1140
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ATCCAGTAAA TCGCCACACT CAAACCACTT GAAATCCCCA TCATCATAGG ATTCAAAATA	1320
GCCATAAGAC GGTTGACAAA CAAATTCAAA CGGGTCAATT CATCATTTAC TGCTGCAAAT	1380
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TCACGAGTGA TACTGTTTCTG TTTATCTGTC AGCCCCTGAA TCAAGGACTG TTTTGAAAG	1500
GCTAGCGTCA TCAAAACGGT CGTCATCAGG ACGTTGATAA TCACTGCCAC AAGTACGGCC	1560
CAGAGCCAGT ATTCTGAATG ACCTAAAATC TTCCCAATAG CCCAGATAGC CATAATTGAA	1620
CCACGCGTTA CCACTTGCAA GCCCATAGTA ATCAACATTT GAACTTGAGT AATGTCATTG	1680
GTAGTACGCG TCAAGAGGCT AGGAATTGAA AATTTCTTAA TCTCTGTCTG CGAGTAATCC	1740
AAAACGCGT TAAAAATATC ACTTCTCAGC CTACTAGTAT AAGAAGCCGC CACTCGGGAT	1800
GCAAAAAATC CAACTGCAAC TACGGACAAG AAGGCAAGAA AGGACATTCC CATCATCATG	1860
CTTGCCGACT GCCACAATC ATCTAAATTA GTTCTTGAC TACCTAGCAA ATCCGTAATT	1920

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TTCGAGATAT AGGTCGGCAC TTCCAACCTCT AGATAGACCG AAAAGCAAGT AAAGAGAATG	1980
GCTAGTAAAA TCATCCCCCA TTCTTTTCTA CTAATTCTTT TGGCTAATTT CTTTATTCTC	2040
TCCTCCTATT CCCTTGATAT TTTGCCTGTA GTTGACCGAG AACCTTCTCA AAAATCAGTA	2100
ATTCATCTTC ATCAATGTCT TCCATCAACT GCTTGTCTAT GCGTTCAAAA AAAGCCTTAA	2160
CCTGTTGCAT CTGAGAACGT GCTTGTCCG TCAGACGAAC AAAGTTAGCC CGCTTATCAA	2220
CAGGACTCGC CTCCAATTCC ACCAAACCAT TTTGCACTAT ACGCTTAACC AGATTACTAG	2280
CAACAGGCTT GGTAAATATT AGTTCCTGCT CGATATCTTT AATCAAGACC AAGTCTGGT	2340
TTTTCTCGCG ATTATCCAAA AAACGCACAA CCTGACCTTG CGGCCACCC ATAAATTCAA	2400
TGCCGCAACG TTTGGCTTCC TTTTGCACCA TCAGGTGAAT TTGATGACCA AAACGCTTAA	2460
AGACTAACAT CGGTTTATCC ATAATCTCCC CTTTCTAAAT AAAAATAGTT CTCTGGAGAA	2520
TAATTAATTT TCTATGAGAA CTATTTTCTT GATTAAAAAA ATCCCAAGTG ATTTTCTCAC	2580
TTAGGATCAT GTTCTATAGG TTAAATTAAA ACCCATCTAC GTTCGTATAA ATCTTTTGGG	2640
CGCTTTCGTC GTCTTCAAGA ACGCTGTAAA GTTTTCAAAA GGTTCGAAGG TCTTCGCTG	2700
ACAATTCCAC TTCTGACTGA GGAATCATTT CCAATTCAGT CACTTGAAT TCTTCAATAC	2760
CAGACTCAGG GAGGGCAACG ATAGCCTTGT GAAGGTCAGT TGGCGCTGTG TAAACTGTGA	2820
TTGTACCTTC TTGTGCTTCT ACGTCATCCA CATCCACATC CGCTTCGAGC AATTGCTCAA	2880
AGACTGCGTC CGCATCTTCA CCTCCAAATA CAATAACACC TTTGTTGTCA AAGAGGTAAG	2940
AAACAGAACC TGAAGCGCCC ATGTTTCCGC CGTTTTTACC AAAGGCTGCA CGGACATTGG	3000
CTGCTGTACG GTTGACGTTA GAAGTCAAAG TATCCACAAT TAGCATAGAG CCATTTGGCC	3060
CAAAAGCTTC GTAACGTCTT TCTGTAAAGG TTTCTCTCTG GTTCTCTTTC GCTTTATCAA	3120
TCGCTTTATC GATAATGTGT TTTGGCACTT GGGCTTGTTC AGCACGGTCG ATAACGAATT	3180
TCAAAGCTGA GTTTGATTCT GGATCTGGAT CACCTTTTTT AGCTGCTACA TAGATTCTA	3240
CACCAAATTT TGCATATACT TTAGAGTTAG CTCCATCTTT AGCCGTTTTT TGGCTACGA	3300
TATTGGCCCA TTTACGTCCC ATTAGGAATC TCCTTTTTTC ACATTTTAAT CTTTCTTATT	3360
ATAACACAAG TTTTTTTGAT TTCACTAGA GGAAATGGAT TTTATTAGCA AATCAAGCTA	3420
GGATAGCACT TTACCTGCTA AGATGGTCTT GCCTTTCTAT CTTTATCAAC AGGCACTCAT	3480
CCACATTCAA AAAACAAACT AGACCATTAT CTGCAAATAG AAAGTTTCAG CCAAGTTTGA	3540
CAAAGTCAGC TCAAATTACT GTTTGAAGTT TGATAGATA AGCGACAAAA ACAATCATAC	3600
TGCACCTTTT GTTGACAGTC TACTCCAGAC ATATCATAGT TCAAGTAAAT ACTTTGAAAT	3660

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TCAACAGTTC TTATAGGCGC TATTGTATTC TAAGAAATCA ATAGAAAGT TTCTAAGCAA	3720
ACCTCTAATA CTCAATAAAA ATCAAAGAGC AAAGTAGAAA GCTAGCCTCA GGTGCTCAA	3780
AACACTGTTT TGAGGTGCG GATGGGGCTG ACATGGTTTG AAGAGATTTT CGAAGAGTAT	3840
AATTTACGTG TTCCCAAGAT GGAGAAGTTA GACTAGTACA CTGGCACTTC TAAAACATTG	3900
CTAGCAATTG ATTTGTTCAT ATTTAATTTT ATTTTTTCCA TAAATGGGTA TTAGATATAA	3960
ACAGCAAAAT ATTTCCGATA CGTGTCTGTC TTGAATTTCC AATCATCTAA AACAAGTAAA	4020
GGATAATCAA TCCCCTGTAT ATCAAGGAAT TGGCTACCCT TTTTACTTTT TTACACATTC	4080
TGTTTGATAG ATTCATTTTA ACATCACGAG CATACTCCAA TGGAAATCGC TAGGCAAGAG	4140
ATAAACTTTC AGATATCCGC AGAGAGATCA TCGCCTCTTT TTGTCCGAAG CATTCTCCTC	4200
TCCTAGTCAT TTTCTACCTT ATCTTCTACC TGAGGATAGA GAGTTGTTCC CCAAATAGAA	4260
ATCGTCCGCT TACGCACTAG TGGCAAATCG GTTTTTTCAT AAACCGTACG CCACCATTCC	4320
CAGGCAAGCC CGGTACACTC TCTAATTTTG ACAGAGAGAT TACGAACATT CCCTTTTAAA	4380
GGAATACTAG TGGTAAAGTG AGCCGTAAA TCCTGCCCAT TTCTGTCCCA AGCCTTAGGA	4440
GTCAAGACTT CCTTACCTTG ATGATCATAG GATAATTCAT TCCAAGTAAT ATAATATTGG	4500
GCAACATAGG CACCACTATG ATCCAGCAGT AAATCTCCGT TTCTGTAAGC TGTAACCTTA	4560
GTCTCAACAT AGTCTGTAAT ATTTTGAAAG GTCGCAACTA CATTGTCACG TAAAAAGAA	4620
GTTGTATAGG AAATCGGCAA GCCTGGATGA TCTGCTGTAA AGCGACTGCC TTCTTGAATC	4680
AAGTCCTCTA CCATATCCAC CTTGCCTGTT ACAACTCGGG CACCCGAACT TGGGTCGCCC	4740
CCTAAAATAA CCGCCTTCAC TTCTGTATTG TCCAAAATCT GTTTCCACTC TGTCTGAGGA	4800
GCTACCTTGA CTCCTTTTAT CAAAGCTTCA AAAGCAGCCT CTACTTCATC ACTCTTACTC	4860
GTGGTTTCCA ACTTGAGATA GACTTGGCGC CCATAAGCAA CACTCGAAAT ATAGACCAAA	4920
GGACGCTCTG CAGAAATTC TCTCTGTTTT AAATCCTCTA CCGTTACAGT ATCTTGAAAC	4980
ACATCTCCTG GATTTTAAAC AGCATCTACG CTGACTGTAT AATAAATCTG CTTAAAATTA	5040
ACAATCTGAA TCTGCTTTTC GCCTGAATGG ACAGAGTTAA AATCAATATC AAGAGAATTC	5100
CCTGTCTTTT CAAAGTCAGA ACCAAACTTG ACCTTGAGTT GTTCCATGCT GTGAGCCGTG	5160
ATTTTTTCAT ACTGCATTCT AGCTGGGACA TTATTGACCT GACCATAATC TTGATGCCAC	5220
TTAGCCAACA AATCGTTTAC CGCTCCGCGA ACACTTGAAT TGCTGGGGTC TTCCACTTGG	5280
AGAAAGCTAT CGCTACTTGC CAAACCAGGC AAATCAATAC TATAAGTCAT CGGAGCACGA	5340
TCGACCGCAA GAAGAGTGGG ATTATTCTCT AACAAGGTCT CATCCACTAC GAGAAGTGCT	5400
CCAGGATAGA GGCGACTGTC GTTGGTAGCT GTTACAGAAA TATCACTTGT ATTTGTGCGAC	5460

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AAGCTCCGCT TCTTTCTTTC GATAACAACA AACTCATCGG GTAGCTGATT ACCCTCTTTG	5520
ATGAAACGAT TTTCAATACT TTCTCCCTGA TGGGTCAAGA GTTTCTTTTT ATCGTAATTC	5580
ATAGCTAGTA TAAAGTCATT TACTGCTTTA TTTGCCATCT TCTACCTCCT AATAAGTTCC	5640
TGGATTGAGT TGCATAAACT CAGACTTGTT CAGCGAAATC AGCCGTGGTT GGACTAAGTA	5700
ATCCAAAATT TCCTCGTACA ATTCTTCTGA GACATTGCGT CGCCGTCTGG CTAAATAAGA	5760
AGTCGGAATG ACCGTATTAT CCAACATAAA TACCTTATCT AAGTCAATCA AGGTTGGTCT	5820
TGTAAAAGGA TTACGAGCTA GATCCGGCTC TTCTATCATA AAGTTCTTGA CCAAACGTCT	5880
GGTCAAGAGA GCTGGTTTGA AGGTCTGATT TTAAACCAAC TCTTTGTTTT TAGTCATGCT	5940
GTTGTCAATA CAGATATACA TATGATTCTT CACAGCCAAA TCGCTACTAA TAGTCGGAAA	6000
AGGCAAATAA AGAGCTACAA CATCTCTCTT CTTAATCAAG CAAGAGCACC CCCTTTTCTC	6060
CTAATGTAAC ATAGACAGGA TTGACCAAGT CTTCTGATTG ACTCAGAATT TCCAAAGTTT	6120
GAGTTTGGCG CGCTGTCAAT TTAGTAGCAT CTTGTCTCTT CAATACAAAA TGCTTGTCGC	6180
CAATAACCTT GACAATATAA TCCTTCTCCA AAGCTGACTG GTAAATCCAC ATCAGATGTT	6240
GTCTGTCTTG AGAACTCAAG AGAGAAGGAT TTTCAAGCCT CCCGATAGTC TGATAAAAAAT	6300
CAAAAACAGG AGCTAACTCC TGCCAATCTG ATTGGCTAGT TGTCAAGGCT AGAAAAAGGG	6360
CTTTGCGAGC TGATACTTCT TGGTTAGCCT TGAGAGTTAC TTTCCCCTCC AAGTTTTTTA	6420
GAAATCGGGA AACTCCAGAA AGCAAATTTT TCTCTAACTG CGAGAAATAA AAACCTTTCC	6480
TCCCCAGACA TAAGTCTTTC ATGTGCTTTT CTCTAGCAAA TAAGAGCTCA AACATTTGAT	6540
AGTAAAAGAA AAATATCTGG CACTGGGTCG CGCTCATCTT TTCCTTATCG GCTTCTTTTT	6600
TTAACCAGAG CAAGGGCGAC AGGTAGCTGG ATTGAGACAT TTCCTCTACC TCCTACTCTT	6660
TTTTAACTGG AGCATCTGCA CTAGCTGCCA CTTCTTTTGA CTGGATACTT TCCCCTGGT	6720
TAATCTCCTC TGAGATAAGA CCTTCGCATG TCTTGACAAA TAGGGCAAAA GCCTTGGTCT	6780
TTCTTGCGATA TTTCTCCGTT TGGCATTGAT AGAGGAATTT TTTTCTCTCC AGGAGTTGCG	6840
CAGTTTTTTG GTAAGAAATC CAATTTTCTT TTGCATTATA CAAATTGATA ATCCCCTCAC	6900
ACAGCAAGCC GAGACTGGAT AAGGCAACCG AAATCAAACG GTAGCGATCA CCTGGCATAG	6960
GAATAGCACA AAAGACAGCT ATGAGGAAAC CTGCCACGAT TTCTGTTATT TTTAATACCT	7020
TATAGCGCCT ACGATGTTGA ACGCTTTTCT TTAATAAATG AGCTATCTGT ACGTCTAATC	7080
GCTCTGTCAG GTACATTTCT TCTGGCGTCA TATTCGTAAC TCCTTTCATT TACTTTGATA	7140
ATCAGGG	7147

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## (2) INFORMATION FOR SEQ ID NO: 24:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 755 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 24:

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CCGCATGGGA TTGGTGTCTT TTTGGGCAAT CTCTTTGACC AAACCTGGAAA CATGTTTTAT      60
GCGCCTGCCT TTACTGCCCT TGTGGCGGT ACGTCTATAT GATCCTAGTC GCAAAAGTTC      120
CCCGCTTTGG AGCCATTACC ACTATCGGCC TTGTCATTGC CCTCTTTTTC TTGGGAACTA      180
AACACGGTGC TGGTTCCTTC CTCCTGGAA TTATCTGTGG CCTCCTAGCA GATGGAGTAG      240
CTCATTTAGG AAAATACAAG GACAAAACAA AGAACTTCCT TTCTTTCATT ATTTTCGCCT      300
TTAGTACAAC AGGACCAATC TTGCTTATGT GGATTGCGCC CAAAGCCTAT ATGGCTACTC      360
TTCTGGCAAG AGGAAAATCC CAAGAATATA TCGACCGTAT CATGGTCGCT CCAAACCTG      420
GAACTGTCCT TCTATTTATC GCAAGTATTG TCATCGGAGC CCTAGTGGGT GCCTTGATTG      480
GACAAGCCTT GAGTAAAAAA TTTGCCCAGA AAATCTGATC AGTAAAAAG AGCCACGCGG      540
CTCTTTTTTA TTTATGGCTC AATTTCTTAG TCAAGAAATC TCCCAAGAAT TGGATTGCAA      600
AGATAATCAA AATGATAATA ATGGTTGCCA AGATGGTCAC ATCGTGATTG TAGCGGTTAA      660
ATCCATAAGC GATGGCTACG TTACCGATAC CACCAGCTCC AACC GCACCG GCCATAGCTG      720
TTCCCAACA AGGGAA:CAA GGTcACAGTC GTCAC                                     755

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## (2) INFORMATION FOR SEQ ID NO: 25:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 3010 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 25:

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TTCAATTGGT ATCTCAATCA ACGGTCTTCA CATGGTTTCA ACTGGTTTGA CTCTTGAAAA      60
AGCGAAAGCT GCTGGTTACA ACGCAACTGA AACAGGCTTT AACGATCTTC AAAAACCAGA      120
ATTCATGAAA CATGACAACC ATGAAGTAGC AATTAAGATT GTCTTTGACA AAGATAGCCG      180
TGAAATTCTT GGTGCCCCAA TGGTTTCACA TGATATTGCA ATTAGCATGG GAATCCACAT      240
GTTCTCACTT GCTATCCAAG AGCATGTGAC AATTGATAAA TTGGCATTGA CAGACCTCTT      300

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CTTCTTGCCA CACTTCAACA AACCATACAA CTACATCACA ATGGCTGCCC TTACGGCTGA	360
AAATTAAAAA TGAATGAGCT ATCTGGCCTT AAGTTAAGGT CAGATAGTTT TTAGCTAATT	420
TGTCCCCATA CAATTATAGT TTTTMTATCT TGTGCTTCAT TCTGTTCTGA CTTAAAAATGA	480
AAAGGTAGCT ACCAATACAA ATGATGAGGA TAAAACAAAT GACTGAAAAT CGTTATGAAC	540
TAAATAAAAA CTTGGCACAG ATGCTCAAGG GTGGTGTAT TATGGATGTG CAGAAATCCTG	600
AACAGGCTCG TATCGCAGAA GCTGCTGGTG CGGCAGCTGT GATGGCCTTG GAACGAATTC	660
CGGCTGATAT TCGTGCAGCT GGAGGAGTTT CCCGCATGAG CGACCCAAAG ATGATTAAAGG	720
AAATCCAAGA AGCGGTTAGT ATTCCAGTAA TGGCTAAGGT CAGAATCGGG CATTTGTGTG	780
AAGCTCAGAT TTTAGAGGCT ATTGAAATG ATTATATCGA CGAGAGTGAA GTTCTATCTC	840
CAGCTGATGA CCGTTTCCAT GTGGACAAGA AAGAATTCCA AGTTCCTTTT GTCTGTGGTG	900
CTAAGGATTT GGGTGAAGCC TTGCGTCGTA TCGCTGAAGG TGCTTCCATG ATTCGTACCA	960
AAGGAGAACC AGGGACAGGG GATATCGTCC AAGCTGTTCG TCATATGCGT ATGATGAATC	1020
AGGAAATTCTG CCGCATTCAA AACTTACGTG AGGACGAGCT TTATGTTGCT GCCAAGGATT	1080
TGCAAGTCCC TGTAGAATTG GTCCAATATG TTCATGAACA TGGAAAATTG CCAGTTGTAA	1140
ATTTCCGTGC TGGAGGTGTT GCAACGCCAG CAGATGCTGC GTTAATGATG CAATTAGGGG	1200
CAGAGGGGGT CTTTGTCCGT TCAGGTATTT TCAAGTCAGG AGATCCTGTT AAACGAGCGA	1260
GTGCCATTGT TAAGGCTGTG ACTAACTTCC GTAATCCTCA AATCCTAGCT CAAATCTCTG	1320
AAGATTTAGG AGAAGCCATG GTTGGTATTA ATGAAAATGA AATCCAAATT CTCATGGCTG	1380
AACGAGGAAA ATAGATGAAA ATCGGAATAT TGGCCTTGCA AGGGGCCTTT GCAGAACATG	1440
CAAAAGTGCT AGATCAATTA GGTGTCGACA GTGTAGAACT CAGAAATCTA GATGATTTTC	1500
AGCAAGATCA GAGTGACTTG TCGGGTTTGA TTTTGCCTGG TGGTGAGTCT ACAACCATGG	1560
GCAAGCTCTT ACGTGACCAG AACATGCTAC TTCCCATCCG AGAAGCCATT CTATCTGGCT	1620
TACCAGTGTT TGGGACCTGT GCGGGCTTAA TTTTGTCTGG TAAGGAAATC ACTTCTCAGA	1680
AAGAGAGTCA TCTAGGAACT ATGGATATGG TGGTCGAGCG TAATGCTTAT GGGCGCCAAT	1740
TAGGAAGTTT CTACACGGAA GCAGAATGTA AGGGAGTTGG CAAGATTCCA ATGACCTTTA	1800
TCCGTGGTCC GATTATCAGT AGTGTGGTG AGGGGTAGA AATTTTAGCA ACAGTGAACA	1860
ATCAAATTGT TGCAGCCCAA GAAAAAATA TGTTGGTAAG TTCTTTTCAT CCAGAATTGA	1920
CTGATGATGT GCGCTTGAC CAGTACTTTA TCAATATGTG TAAAGAAAAA AGTTGAGATT	1980
GAATTTCTCA ACTTTTTCAC ATGTAATAAA CAATAGCGAT GTATTGAAGT GCGGACGCAG	2040

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CTAGGATAAA GAGATGCCAA ATCATGTGGA AATAAGGTTT TTTCTTGGCA TAAAATCCAG	2100
CTCCAACGTG ATAACAGAGT CCGCCAGTTA CCATGAGACT CCAGAAAACG GGTGTCGTTT	2160
GACTGATAAT GGCAGGAATG ATAGCCAGAA CCAACCAGCC CATAATCAGG TAAAGAGCAA	2220
GGCTAAATTT CTCATTGACC TTTTGTAGCA AGATTTTATA GAGAATACCA AAGATGGTCG	2280
TTCCCCATTG GATGACAATA ATCAGATAGC CAAACCAGTT ATTCATCAAG GTCAAGACAA	2340
CGGGCGTGTA TGAGCCGGCA ATGGCAACGT AAATCATAGA ATGGTCAATG ATTCGCAAAA	2400
CATATTTGTG GGTGGAACCA TAGGCCATAG AGTGATAAAT GGTGGATGAT AGGAACATGA	2460
GAAAGAGACT GATGACGAAA ATGGAAACGC CGATAGAGGA TAAAAATCCG TGTGCTTCAT	2520
AACTATAGAT GGATGAAATA GGCAGCAAGA TAAGCATGAT GACTGCACCC ACAGCATGGG	2580
TCACGCTATT AGCAATCTCC TCTCCAAAAC TGAGTTGTTT GCTGAGTTTA AGACTAGTGT	2640
TCATTGGATT ACCTCCTCTT GAGTATGATC GATTAAGTCT AGAGTTTGAT GATAGAGTTT	2700
AACGGTTTGG CAGCTGGTTT GGATAATAGG GTTAGCTGGG TCAATTCCTT GGTTTCATGA	2760
GTCCACAAAA GCATCGTAGA GTTGGTCTGA ACTTGCTTGA GTTTGTAGAG TATTAAGTGT	2820
CTGGGCTATT TCTTGAATAG AAAATACAGA CTTGAGGGTT GTGATAGCAA TCAAACGGGC	2880
AATCTGTTGG CGTTGGTATT TTTTGTGTC AGGCTTTGTC AGGTAACCAT TTTTCACATA	2940
ATTGTTGACC ATAGATGCTG TTAGGCCCTT GTCTTTATTA GGAGAGATAG GGGCGCAGAC	3000
CTGATTGACA	3010

## (2) INFORMATION FOR SEQ ID NO: 25:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 15213 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 26:

CATAAATCGG TGCAAATAAC TTAATAGTGA AGTAGCCATT TCTTTCGTAT TTACCTGAGG	60
CATATTCCCT AGACGAAAGA ATATTATTAT CAATCAAATC ATTGAATGAA CGTAGTCTTT	120
CAACTTCTTC TACTGTTAGA TTTCTGACAA CATTGTGTC ATAGACCTTA TTTCCATCAG	180
GATCAGGATG GTAATCATTT GTAACTTTTC TAAGAAGTTG TTGTTTTTGA TTCGTATCCA	240
ATTTAAGAAT TGAATTTTCT TCGAGATATT CCAACATATA AACAACGTCA AACATGTTGT	300
GGACATATTG CTTCAAATCA TCTGCATTAT TAAATCTTGT AGTTGGATCA AGTACTTGTA	360
ATCGTCGACT TTCTGTACTA TCAGATTTTG AATGTTTCAA GATGGAGTTG ATGGTAATGG	420

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TCGCATCATC TGGATGGTCT GGTGCTTGTA ATAATCCTTT AGCAAAGAAC TCTGGTCCCA	480
AGCCACTTCT TCGACCATAT CCTCCAAGAT AAATGTCCTG ATCTGAGTCA TGTGTCATCT	540
CATGCGTATA AGTAATAGCT CCATCCTTAT CCAACATTCC ATAACCCATA TAATAAACTG	600
CATCACCTGT AGCATAAGCA CCGTGTTGAT TATGCCCAAC TTTATTTCCA ACAGGTCCAA	660
AGAAATGTTG CATTGCAGGA TTTGGATTAT CAAAATCTGC CACTTCTGTA GCTTTCCCTA	720
CGGTATTATC ATCGCCAAAT TTATAAGCAT CGTAAAGCAA AATATTTCTA TAAAGTTTTT	780
CACGTGCATT GTCGTCTAAA ATACGATACC AATAATCGTA GTGATCTCGC TGACGTTTGG	840
CTGTTTCACG CGCATTTTCT TCAACAAAAT CATTGAGAGC CTTGCCCGCT TTATGGTCAC	900
TACTGCGGTA GCGATCATAA GCTCCAAATC CTAGACTAGA CATGGTCGAG ATGACAAATA	960
CGGATCTCTC TGGCAAGGTC AGGAGAGGCA AGACCATATT GCGGTATTTC CATGTGGCAC	1020
TCGTGATACG ATCATAAACA CCGATAGAAT ACTTGGTGCC AGCTAACCCT TGCTTCGTTT	1080
TCACCTCTTC GATAGTGGAT TTTTCTTCGA CAATGTAAGC CTTAGTCTCT GATTTAAACC	1140
AGTCATTATT GCTTGTATTT GGTAAAAAGA CTTTTCGGTA ATGTTCCAGC GTGCTAAACA	1200
AATCTGTCGT TCCATGTGTA CTGGCAAGAC TGATACCATA AGTATCGACA TTATTCTTAG	1260
CTAGAAGATT GTTAAAGCCA GATTTACCCA ACTCAATCAG AGTATCTAAT GGTGAAGCAT	1320
TCCCCTTACC AAAGAAGTCC AAATGGTACA GAACTAGGTC TTTGACATTC ACCTGACCAT	1380
AGCTAAAGTT ATACCACCGT TCCAGATAGG TCAAGCCAAG TAGCAAGGCT TCCTTGTGTC	1440
GTTTGATTTT ATCTACAAGA TAACCTTCAG TGACGGGGTT AGCACTAGCC AGTCCAGCAT	1500
CCGCTGACAA GAGTTTTTTC AAAGTGTCTT CCAGTTGTTG TTTTGTTTTG GCGAACTGGT	1560
CTTCTAGATA GAGCTCAGTT TGCTTGACGT TTGGAGAAAT ACCCAGCGTC TTTCTGATGG	1620
CTTCTGAATG ATAGTCAACC TTTTGTAAGT CAGGTAAGAC TTGCTTGATG ATAGAGGTTT	1680
GGTCATACAG GAATTGGTTT GGCGTATAGA GAAGTCCAGT ATTGCCCAGA CTATATTCTG	1740
CTAATTTGGC GAAATCATTC TGGTATTGTA GATCCAGCTT CTCAGATAAA TCATCCTTGT	1800
AGTGAAGCAA GAGTTTGT TTGCAGTCTGTT TGTTAGAAAC AATGTCTGTG ATGACTTGGT	1860
TGTCCTTCAT CATGACTGCT GACAAGAGTT CTTTTTGATA TAAAAGACTG TTCTCATTTGA	1920
CCAGGTTTCC GTATTTGACG ATGGTTGCCT TGTTGTAGAA AGGTAGCAAT TTTTCAATGT	1980
TTTTATAAGT CAAGTTGCGC TTAGCTTGAT AATAGGCCAC CTTAGAAAAA TCACTGTCTT	2040
TTTTGCCACT TGTGAAAGT GGCTCCACTG TTGGTAAAAT GAGAGGATTG ATTTCTGCTT	2100
TTTTGCTTGC AATTTGAGAA GCATCTAGCA TTGTTCTCTT TTCTTCAAAG GATTCTTGC	2160



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TGACGACCTC ATCCTTGACC AAGGTGACAT TGTAGACTCT GTTGGCCTTG CTGCTGAATG	2220
TGTCCTTTAC CTTCATTTTCG TTATAGTGGT AACCACTGAT GGCATTTCCG TTGGTTACAT	2280
TAACATCGCT GAGAACATTG GTCAAACTTC CAGCATGCCT AACATCACCA GAAGTTTCGAT	2340
CCCACAAATT GCCTGCCACT CCAGCGACTC TACCAAAGTG CTTGACATTG TTGATATCAC	2400
CTTCAGCATA GCTATCTTGG ATCTGTGCAT CTCGGTCTAC TAGGCCTGCA AGTCCACCCA	2460
CAGTCTGATC TGAAGTATTT GTGTTAGATG AAATGGCTAC TGTGCTTTT GACTTAGTAA	2520
GTAAAGCCTT GTCACCTGTC AAATGACCGA CCATACCACC GATATTGTAG GCAGCAGTCG	2580
TTTCATAAGT GTTGATAATT CTTCCTTGA AACTGCTCTC TGTGATGCTT GATTGCTCAG	2640
CCTTAGCCAG CAAACCACCG ATACCACGTT CACCAGCCAG AACACCATCG ACGTGAACCTT	2700
GCTTAATTTT TGTGTTATTC TGAGCTTCAT TTGCCAGTGA ACCGATATCA TCTTTCCCTG	2760
AAATAGCAAC ATTTTTTAGA CTCAGTTTTT CTAAGTGTAGC ACCACTCAAG TTTTCAAACA	2820
GAGGTTTTTT CAAATTATAG ATAGCATAAT TCTTGCCATC TTTTTCACCG ATTAAACGAC	2880
CAGTAAAGGT GTCCTTGATA TAGGATCTTT CATCAGGACC AAGCTCCACT TCGTTAGCAT	2940
TCAGGCTGGC CGCTAAATGA TAGGTTCCAG AGGGATTTTG GTTTATAGCT TTGACCAGAT	3000
TACTAAAGGA AGTAAAGTTT GTTGTTCCTT CTGTTCCCTT CTTAGCTAGA TAGAAGGTAA	3060
AATTATCTTT ATATCTGCTT TCTATCTCCT GCTGAAGCTT CTCTACTTTT GCTGTGATTT	3120
TATAAAGGAT TTTATCATTT TTTCTTTCCT CTGATATTGA TGCTACTGGT AGGTATACAT	3180
CTTTGAATGA AGAAGATTTT ACTTTAACAA AGTAGCTATT TGGATTGCTT GGAACCTGCT	3240
CTAACGAAAT GTGTGTTTA TAAGTACCAT TTGACAACT GTATAACTCT AGGTCGGAAA	3300
CATTTCTTAA TCAAGTGT TCTCTGGTT CTCTACCTT TTTATCAGGG TCTAGTTCAT	3360
TTTCTTGTTT AATTTCTTCG TTCCATTG AATTGGATGT GTTTGATTGG GTTGAAACAT	3420
CCTCAGTTGA ATTTCCGTTT GATGGTTCTG GTTCTGTTTG TCCATTCTCT GATGTTGTAT	3480
TACCTGAATT TTCTGGTTTT GTTGCAGTTC CGTTTTTTC TGGTTGATTT GATTCTTCAA	3540
CTGGTGGTTT TGAATCACTA GGTTTATTGG ATACTTCTCC AGTATTTTCG TTAGCTATTT	3600
TCCCAGAGTT TGTGTTGTTT TCTTCTGCAG GTTGAAGTGG TTTTCTGTT TCTTGATTTG	3660
AGGTACCTTC TACTGTGCCT TCATTTGGAT TTAAGTGAAC TTCTTCTACA GTTTTCTCTG	3720
AATTTTCATT TTAGAGTCA TTATGTTCTG GTTTATTGTA TTCTCCAAC TGGGTTGTCG	3780
AATCACTAGG ATTAAGTGGC ACTTCCCCAG TATTTTGCT AGATGTATCT GGTGATACTT	3840
TCTCTGAATT CGTTGTTGAT TCTTCTGCAG GTTGAAGTGG ATTTTCTGCT TCTTGAATTG	3900
AGGTTCCCTC TGTAGTACCT TCATTTGGAT TTAAGTGGT TTCTTCTGTT GGTTTTACTG	3960

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GAACCTCTTC AGTTTTTCTT GGACCTTGTT CTTTGGTCTT CTCAACCGGA GTTTCAGGTT	4020
TTACTTGCTC AATATTACCC TTATATTCTG GAAGCGGTGC TACCTGCTCT GGTTCACCTT	4080
TATCACTTAC CACAGTATCT GGCGACTCTG GTTGAACCTC AGTCTCACCT TTGTCCGTCA	4140
CAACTGCTTC GGGTAATGTA GGTGAACTT CTGGTTCGCC TTTGTCACCT ACTACAGCTT	4200
CGGGCAACTC AGGCTGAATT GCGGGTTCOA CAATAGCTCC AGACTGTACG TCCTTATGTT	4260
CTACACCAGT CTCAGGTGTT TCCTTTATAA CTTGAGTTTT TTTAGTACCT TTTTCGACTA	4320
TTCTTGGAAT AGGCGCAGTC GTTGAAGTTG AAACAATTTT TCGCGAAACT TCTTCCTGT	4380
TTACAGAGAA TATTCTGACG ATTTCAACTT TCTTACCTAA TTTACCTTCT TGTMTTACTC	4440
TTACAGTTCC TTCAGCTAAA TCAGGATTTT CTTGAATTTT TTCTTGAAAA TCTATTTTTG	4500
TCTCCATAGT TTCCTCACGA TATAAGAGTT CAGGTTTGTT CAATTGACCT GATAAAACTT	4560
CATCCTGTGG ATTTAATGTA TTTACCCAG TCTTTTCTTT TGGAGAAATC TTCTCCTCTT	4620
TCTTCGTTTC TAGATTCTTA TGTTCCGCTA ATTGTTCTTG AGAATCTGAA GATTGTTTCT	4680
CTTCTTTTCT TGGATTGATT AATTCAGTAG AGAAAGGTTT TTCAACTACT TGAACCTCTG	4740
TCGGCTTAGT TGAAGAAACA GGTGTTTGTT CCTGAATAGC TTGTACTGTT GATGGATGGT	4800
CTACAAAATT CGGTGTAACA TTATAATCCA CCTMTTGTTG TTTTGTAGGA GTGGCAACTG	4860
AACTCTTTTG ATTACTTACT TCAGACTCAG AAGTCGTTTT TCCCTCTTTG ATATATCCAA	4920
TATAAGTGTA ACCTGAAATC TCTTTAGGAA GAGGTAATTT TTCTCCAGAG GTCAATTCAT	4980
AGTCCGTATT GTAATTTAGC AAAAGATGAT TTTCTAAAGC ATGGACTGAA ACTAAGACAC	5040
CATTTCTAT CCCTGCAACC AATACTAAAT GTAATACCGT TTTATTCTTA ACCTTTTTCT	5100
TGGAAACAGC AAAAATTAAA ATTCCCATAG CAGCTAAGCT AGCACCAGCA AATAGGGCTT	5160
GCCTCTCATT CTTGCTTCCA GTATTTGGCA ATTCCGCCAG TTGATTTTGA GAATTTAACT	5220
TATAACAAG ATAATAAGTT TCATCATCAT TCTCCACGTA TGTCCGAATA TCATAGACAA	5280
GCTGCTTCTT TTCTTCTGAT GATAGCTCTG AATCTGCCAC ATATTTATAG TGAACCTCCG	5340
CAGTTTCTTG AGCATCCACA GATGAACTAG CTAATACAGA CATAAAAAAT AAACCTGAAA	5400
TCGTTGCAGA TACAAGTCCT ACTGATAATT TTCTAAATGA AAAACGCTCT TGTMTTTCAC	5460
CAAAATACTT TTCCATTATT CCTCCTTGAA ATAAAATTTA TATATGTTAC AAAGACCTTT	5520
ATTATATTAG TGTATTATCT ATTATCTATA GAAAAGGCAG TATACCTTAA TTATACTCTT	5580
AATTTACAAA AAAGTCTTAA AATTGAGATG CGCTTTCATA CTTTGTTTTA TATTATTGG	5640
AGGTACAATA ACACCTACCA TGAAATTTAC ACGGTAGGTG TTACTCATAT CACTAATCGT	5700

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TCTAAAAATG GTTTGAGGCA GTTGAGGAGA ATTCCCTCTA TCCAGCTTCC TTGTGCTGAT	5760
GAGCGATGGT CTTCTGCAG GCTTTTTTTT AGAAAATCTC GGACTTGTTT TGGTGGGATT	5820
TCAAATTCAA AGGCTTTCAT TTTATAGAAA AAGTCGATGA GATGATCTGA CAGGTATTCA	5880
GTTGAAAAGG GTACTTCACC ACTTTTTCTA TATTCTAATA AGAGTCTAGA AAATCGAGCT	5940
TTTTCTTCAG GAAGCTCAG AAAATAGGAA TTGAGGATCC AAGTCTGCTT CTGTTTCTT	6000
TCAATGGAT CCTGACTGGC AATTCGTTGG TCTTTTTCCA GCTCTTTTG GTATTGTTTG	6060
GCCTTGATAG CTCGTTCTGC TCTATTTTTC CAAAAAGAA TTTTTCCCA CTGCGTTCT	6120
TCTTGAGTCA GGGTCTCTGT AAAGCCAAAG TAATCTTGAT AAGCACGCTC TCGGGTCCC	6180
ATGGCTAGAA CCAGATTGTC TGCATATTGC TTGGCGATTT TATCCCTCTT CTGCGTTCT	6240
TTCTCTGCTT GGATACGGAG TTCTTGTTCC TAGTCAATTT TCTCCTGCC TAGCTTGACA	6300
AGGTAGAGTT GGTCTCCGA TTTCCCAAGT AAAAAGGGTT TGATACACTT TTCAAGGACT	6360
TCTTCCATCC GAGCCTTTTT CTTTGGTTCC GCCTTGGTCC AACTTCCTCC CTGAAAGACT	6420
TCTAGGAAAA GCTGGTAGTC TCTCTCAGGC GCAAATTGAT TGCCACGATT GGGTTTGAAA	6480
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GACGAAGTCA GCTCAAAACA CTGTTTGTAG GTTGTTGATA GAACTGACGA AGTCAGTAAC	7020
CATATATACA GCAAGGCGAA GCTGACGTGG TTTGAAGAGA TTTCAAAGA GTATAAGTTA	7080
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AATCGAATAG GCTCGTGATA AAGCCTCTTC GTATAGAGCT AACTGACCAC GATAGCGGTC	7200
TACGAGTTGA CTTGGTTTAT CATAGCGGTC TGTCTGTAG TCGAACAGAA CAATTTTGT	7260
TTCTGTAAGC AGATAGCCAT CAAGGATACC ACGGACAACA AAGTCTTCCT GACTCTTTTG	7320
GTCTCGTTTG AGCATGGAGA AAGGTTGCTC CGGATAAAGA TGGTCGGTAT TAGCAAGAAT	7380
TTCTTGACCG AGTACTGTGT CAAAGAAAGC AAGAATTTTA TCAAGATTGA TCTGTCTCT	7440
GACAGCTTGG CTAGTTTGAA CTTGTTTGAG TGTCTCTGT AGGCTAGCAA GGTTAGTTG	7500

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ACCTTGACCA GCAATCTCGA CACCTTCCAT ATCCATAACT GGTTCTGTAGA ATTTCTTGAT	7680
TTGACTTGGG GTTGAACAC TAGGAAGTTC AATAGCTGCG CCGTGAAGAG TATTATAAAC	7740
TTCCACCTCC TTCAGCATT TCCAGAGCTTC TTGATGGTA TCTGACTGAC GATTGTCTGC	7800
TTGGGAGCTA TCTTGGAGAG GACTCTTGGT TTCCAACCTCT CCGATAGCTT CTCTGGTCAA	7860
CTGATCTTCG CCAATAAAAC GATAACTAAA GTTGAGCTTG TCCTTAGTAA ACACCTTTACT	7920
GATAGCCCAA AGCCAATCTT GGAAATTCG TGCTTGCACT CTAGTATTGC TATTTAGTTT	7980
CCCATTTTTC GCTGCTGGGT ATTCCTTGGG TTCCAGCTTT TCACGAGAAC CCTTGCCGAC	8040
AAGATAGAGC TTTTCTCTCAG CCCGCGTCAT AGCAACATAC AGCAAACGCA TCTGCTCAGA	8100
ATAGCTTGCT AGCTGTAATT CCTCTTCGTT CTGCCTATAG GTCAGACTAG GAATGGAGAG	8160
TTTGATGGTT TTAGGATAGT GGTCTTCTAC TGCCCTGTG TCCATCTTGG CAATATATTT	8220
GACACCAAGA CCATTCTGAC GACTGAGAAT GACTTCTGAC ATAGAGTCTT GCTTGTGAA	8280
ATCTTGATCC ATATTGAGGA TAAAGACGTA AGGAAACTCC AGCCCTTTAC TCTTGTGGAT	8340
GGTCATGAGC TCTACTGCAT CTTTGGCGG TGCGACGGCC ACGCTTGCCA AATCGTGCTG	8400
GGCTTCTAAG ACTTGGTCAA TCATACGAAT AAAACGCGAC AAACCTTTGA AATTGCTCTT	8460
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CGGCAAAGCC CCAACATAGT CATAATAAAA ACGGCTCTTC TAAATCTTCC AAATCAAGTC	8580
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GTAGTCTTGC AGGGGATTGT GAATGACACG AAGAGTGTCT AGCATGACTT GCACCTCTAG	8880
GGATTGGAGA TAATTGTTTT GCTCTCCGTC AGTTTTGACA GGAATCCGT ACTCAGACAG	8940
GGCGAGGAGA ATCTGGTCAT TACGACTGCG GCTGGAGGTC AGAAGGGCAA TTTCTTAAA	9000
GGCAACACCT TTTTCTTGAT GAAGTTTCAG AATCTCCTTG ATA ACTAAGC GCATTTGCGC	9060
TGTTAGTTTC GTTTCTGTTT GACTCTCTTC TTCCTCACCT GTATCGTCTT TGTCGTAGAG	9120
GAGAAATGCT GCCTTGTGTT CTGGATTGGG AGTCAGTTTG GTATTGGCAA AAACAAGCTG	9180
GTGCTTGTTA TCATAGTTGA TTTGCGCGAC CTCTTGCTCC ATGAGACGTT CAAAGACATC	9240

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ATTGGTTGCT GACAGCACTT CTGAACTACT ACGGAAATTT TCCTTGAGGA TAATGAGCCT	9300
GCCTTCTTGG GGATTTTGCG CATAGCGTTG GAATTTCTCA TTGAAAATCT GCGGGTCTGC	9360
CTGACGGAAA CGATAGATGG ATTGCTTGAT ATCTCCCACC ATAAAGCGAT TGTGGCCATT	9420
AGACAACAAT TCCAGCATCC GTTCTTGAAT ATGGTTGGTA TCCTGATACT CATCGACCAT	9480
GACTTCATGG AAGCGCTCCT GATAAGACTC ACGAACTTGT GGGAAATCT CTAAAATCTC	9540
AATGGTGTA TGGCTGATAT CAGCGAATTC GAAGGCATTT TCCTGTCTGT TTCTCTGACG	9600
ATAAGCCTCT ACAAATCGC TCATGAAAGA TTGGAAGGTT TTAGCTAGTT TCCAAGTGTC	9660
TCCATGATAA CGTCTTGAT AGTCGAGAAT CGCTATCTGG TCTGATAATT GTCCTAGTTT	9720
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ATTAAGTGAA CATTTTCTAA ATAGGCAGCC TTTGCAAAT CCTTGGCATC GTTATCCAGA	9960
TGGTAACGGA AAAAGCTTC CAAATCCCA AGGGCTTGT TGATTTGCTC GGTCACTTTT	10020
TCTTTTTCAC TGGTAAATC AGCTTTCTCA AATCCTTTGA GGAAAGATTC ACTCAGCCAC	10080
TTTTGAGGAT TACTGGTGGA TTGGAGGAAG TCATAGATTT TATAGACCTG CTGGCGCAGA	10140
CCCCGTTCGT CCTTGCCAGC CCCAGCAAAG TTTTTCAGCA AATGACTAAA GGTCTCTTTC	10200
TGTTTACCTT GGTAATGCGC TTCAAAGACC TCATGAAAGA CTTCGTTTTC GAGAATAAGT	10260
TGCTCGCTTT GGTTTTGTA AATACGGAAA TTAGGTGCAA TATCAAGCAG ATAACCATGT	10320
TTGCCAAGGA ATTTTGTCT GAAAGAATCC ATGGTTCCAA TGGCAGCGT GGGTAGGTCT	10380
GCCAACTGGC GACCCAAGTG TTGTTTGAGG TCGACATCAT CTGTTTCTTG GATTTTCTTG	10440
CTGATTTTTT TCTCTAAACG TTCTTTAAGT TCAGTTGCAG CCTTGACGGT AAAGGTTGAG	10500
ATAAAGAGTT GAGAAATTC GACACCACGC GCCAATTGGT CCAGAATGCG CTCTGCCATG	10560
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ATAGCTTCGA TTTGCTCGGC AGTTTCTTC TGTTCCTTGC TCGAAATTGC TTCTGCTTCT	10680
TGCAGTTTTT GAATCTCCTC CTCACTTAAA AAGGGAATAA CCTTCATCGA TTCAACTCCT	10740
CTCTTATTTT TTCAAGCCAA GCTTGCTTGA GTTTTCTCC GACCAGACGC TTGCCATCAG	10800
CTAGGTCCAA CTTTTCTAGG AAACGGGCTT GGCCAGATG GTAATTGGCT TCAAAGCCTG	10860
TAATAGCCTG ATGTTGCTGG ACGTATGGGG CAATGCTTCT GCCATTTTCA GTATAAGGAT	10920
TGATGGCGAA CCGGCCTGCT AAAATCTTCT CAGCAGCTTT CTTGTAAAGA TAGGCATTGT	10980
AGTCCAGTAG GAGCTGAAAT TCCTCATCTG TCAGTTGATT AGCCTTGTTT TTGTTATAAA	11040

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ATTTCGCCTAA ATAAGTCTT TCTTTTCCCA AGAAGAGCCC TTGGTATTTC ATAGATTTCG	11100
TGGCTTCTAC CACTGCTCCT GCCAGACTTT TTACCGCCAT CAGAGATTGG ACAGGTTTCAG	11160
CCATTTCCTAA GTACATGGCG CCGAAAAAGT TCTGCTCCCC TTCTCTTTT AGGGCAGCAA	11220
GATAGGTTGG TAACTGAGAA TTGAGCCCAT TAAAGAAATG AGGAACTGG AACTGAGTCA	11280
GACTGGATTG GTAGTCTACT ACTCCTATCG CTCCATTAGC TTCAAACGG TCAATCCGGT	11340
CCACCTTGCC TCGTACAAAG AACTGCGTC CATTGTCTAA TTGAATAAAG GCTTGGTCTT	11400
TTCCACCAAA ATTTGCTTCT TCTTTGATGG TTTCGATGGC TGGATTGTGT CGGAGAATAT	11460
GTCCAGTTGT CCGTGCAACA TCAAGCAAAA CTTCCTTGGT AAAGTGGGT TCCAACTTT	11520
CTTGATAAAT AGCTTCAAAT TCGCGTTCTT GACTGGTTTC TTGAATAGCT TGTTCTAGAC	11580
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AGCGTAGGAA ATAAGTGTAT TCATTGCGAT AAAACTCTGT CAAACCCGAC GTAGACAGGT	11760
AAAAGTCTG TTTGGCAGGA TAGAGAGCTT GCAAGGTGTC CTTGGCTAAG GTCTTGCTGC	11820
TTGGACTGGT TGGGATAGCT GGATTTTCCA GACCTTGCTG ATCTAGTTTT TTACCTATGA	11880
CACGCGACAG AACCTTGACA AAAGTCAAAT CTGTGCTAGT ATCGCTCATC TCACCCTGCT	11940
GGTGATAGGC AACCAGACTA GACAAAAGAC TGTGATAGGA CCCCATATCC TCCTTAGACA	12000
GTCTTTTGTG ATTCATCTTC TTCTCTCTCC GCCTAAATCC AAAATGGATC AACTCTTGAA	12060
GATAGGCAGA TTCCTTACTT TCACCTTCGT TAAAAAGGCT TGGAGCCGAC AAGAACAAT	12120
GCTTACGAGC AGAATTGACC AAGGAAAGCA TAGGTAGCG ATTTTCTTG AGATTTTCAC	12180
TCTGGCAAT CAGTAATTGA ACGCTTCTT CGGTGGCTG GTTCTCTT TCGCTTCTT	12240
CATCTGTCAG AAGACTGGTG TTTTGAGAAA TTTTGGTAA ATTGTCCTGA GTTAGTCCAA	12300
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TGTCCACTGT TGCTGGAATG GTACGGTATT GGGACAAACT CATTCCAGAA TGGAGCAAGG	12420
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GTAGGAGTTT TTCAGCCTTT TGTTCGGGC TGGCAAAGAG GGTTCAGA GGTGCTAAAA	12660
TTCTCAGGCG GAGGACATTC AAACGCTCAA GATTAAATTT TCCATGGTGG GATTGGTGA	12720
AGGTTTGCTG AAAGGCTGGC AAGCCATTGA TACCAAGATA GCGGATATAT TGCTCAAAAG	12780

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CATCAATATC AGACTGACTG AGGTCAGTAT ACAAATCAGT TCTAAGAGAGA TTAATCAAAT	12840
CCTCCTGACG AAAACGGTAA CGTTTTAAAG CTAATATAGA CTCGACAAAC TGAGTCAAGG	12900
GATGATGAGC CATGGCTTCG CTTCTACCAA GATAAAAAGG AATCTGATAC TGGTCAAAAA	12960
TGGTTTTGAG AGATAACTGG TAAGAAGCTA CATCCCCCAA GAGAATACGA AAATGCTTGT	13020
AGCTCAGGTC TGAGTTCTCA TGTAATTTCT GACGAATACT ACGGGCTACT AGCTCCAACT	13080
CCTCCTTTTG CGTCAAACAA GACCAGATTT GTAAATTTTC ACGGTCTTTC TCATCGACAT	13140
CCAAAGCGAG TTCTGAAAAG TCATAAGAAG ACTCCAACAA ACGAGAGGCC TTGTCAAAAC	13200
TATCCATCTT CTCATGAGTT TGAGAACAGT CCTGAGCAGG CGTTTGGTAT TTAGAAGCCA	13260
GATGATGGAG AAATTTTACG CTGGCTTGGT AGAGATTGCC CTCGCTAAAA GGAAGCTGAT	13320
AGGCTTTCTT ACTAGCATAA GCCCGGATAA CAATCTCAAC ACCTTTGCCG TGAAGTAAGT	13380
CCACAACCCG CTCTTCTCTA GCAGAAAAAC GAGTAAAGCC GTCAATGACC AAGGCGATT	13440
GATTAAATC ACTACTTACC TTGTCATTCT CAATAGCCTC AATCAAATGG GACAACTGAC	13500
TTTCCTGGGC TAACTGACCT TGATTAAGAT AGGCTGTTAC TTTCTCAAAA ATCAAGAGTA	13560
AATCCGCCCT CTTATCTCTA TCTGTTAAAT TCTCCAAGTC CAAAAAATC ATCTGAGATT	13620
TGGTCATCTC ATGGTAAAGC TCAATTAAGT GCTGGATCAA TTGAGGATCC TGCTTAATAG	13680
CGCCATAAAC ACGCAAGTCC TTGGGATCGA GTTCGGCAAG GCATTTGTAA AAGGCCAACC	13740
CAAGACCGAT ATCATCAAGA GTAGTTTTAG CTGGTAAATC ATTCAAGACC AGATAGCGAG	13800
CCATTTGAGC AAAGCGCGTG ACGGTAATCG AAAAGAAGC CTGCTGGGAC AAGTATTCCA	13860
GCACGGCGCG TTCCTTTTCA AAAGAAAGAG AGTTGGGGGC AATGTAGAAG ACCCGCTTGC	13920
CAGCTGCAAC TAGCTCTTCT GCCTCTCTTG TTAGAATTTT TGTCAAAGAA GTCCGAATAT	13980
CAGTATAAAG TAATTTATC TCAGCCTCGT TGGAAATTTT CATCACCTTA TATTATACCA	14040
TGATTAGCCT CGTAAATCTG TTAAATATTT TAGGCCATCC TTTCTTTTCT TCATCATCTG	14100
CTAAATCTTA AATACTTAGC TTTACTTGTA TTAGATAGAA TAAGTCTGGC TACTGAAAAT	14160
CACATAATAA AAAAGCCTCG GTAACAAGGC TTTGAGTTTT ATGATTGTTT CTTAGGTACG	14220
GAATACACTT CAATGTGTTG TCCCAGTATC TTAATGTCGA CTGGTAGATT GTCTGATTTA	14280
TGCCCATCAA CATCGGACTC TAATTCGATA TCAGAAGAAG TTTTAATATT ACGTGCCTTT	14340
ATATATTCAA TATTCTTGAT AGAATGATTG AACTATAGTA AATTGAAACT ATAATAGTAC	14400
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TCTTATTTCA ATCTACTATA ATAAATGAA CCAAAATAG TACACAATGT GGTATAATCT	14520
TCTTATGGCA TATTCAATAG ATTTTCGTAA AAAAGTTCTC TCTTATTGTG AGCGAACAGG	14580

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TAGTATAACA GAAGCATCAC ACGTTTTCCA AATCTCACGT AATACCATT ATGGCTGGTT	14640
AAAGCTAAAA GAGAAAACAG GAGAGCTAAA CCACCAAGTA AAAGGAACAA AACCAAGAAA	14700
AGTTGATAGA GATAGACTTA AAAACTATCT TACTGACAAT CCAGATGCTT ATTTGACTGA	14760
AATAGCTTCT GACTTTGGCT GTCATCCAAC TACCATCCAC TATGCGCTCA AAGCTATGGG	14820
CTACACTCGA AAAAAAGAAC CACACCTACT ATGAACAAGA CCCAGAAAAA GTAGCCTTAT	14880
TTCTTAAGAA TTTTAATAGT TTAAAGCACC TAGCACCTGT TTAGATTGAC GAAACAGGAT	14940
TCGATACTTA TTTTATCGA GAATATGGTC GCTCATTTAA AGGTCAGTTA ATAAGAGGCA	15000
AAGTATCTGG AAGAAGATAT CAGAGGATTT CTTTGGTTGC AGGTCTAACA AATGGTGAAT	15060
TAATCGCTCC AATGACTTAC GAAGAGACGA TGACGAGCGA CTTTTTTGAA GCTTGGTTTC	15120
AGAAGTTTCT CTTACCAACA TTAACCACAC CATCGGTTAT TATAGTAAAA TGAAATAAGA	15180
ATAGGGGGGG GGGGGGAGGG GGGGGGAGGG AGA	15213

(2) INFORMATION FOR SEQ ID NO: 27:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 6004 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(x1) SEQUENCE DESCRIPTION: SEQ ID NO: 27:

TTATTACCTG AAACATTAAA TTTAATTGGA CATCCCGTTA TCAATTTTAT AATATCATCA	50
AGATTTTTAT TATCTGATTC AGGAATTTTA TCTGATATAA CAACACCATT TTCAAGATAG	120
TTCATTAAAT TATTTGATTC ACTAACATTA GTGTTTTGAT CTCCTATCAG CCAAAANTAA	190
TGGTTATCGG AATCTAAATA CGATGAGTTT AAAATATTAT TACAAATTAT TTGATTTGCT	240
CCACCAGGAA TATATCTCAC TACTAAATTC TGTTTAAGAT TCTCACTACC TGAATGAGTG	300
ATAACAAACT CTAGAATATA TTTAGCTAGT CTATCTTCAA CATAAATCAT CTTCTAGAA	360
TGATACACAT CACCTAATTC AAAAAATGCA TCCTGATAAT CAATATTTTC AATAACATCT	420
ACCTTTTCTC CGTTTTTCAC TAAAAGTTTC ACGGCTTCTC TAGGAAAATC TTTTATAAGT	480
TGTGTAGAAT GTGTAGTGAT AATAATTTGA TGTTTTTTAT TTAAACACTC TTGAAGTAAA	540
AACTCTTTAA ATTTATAGAT TGCACTCGGA TGAAGTGAGA TTTCAGGTTT ATCTATTAAT	600
ATTAATGAAT TTGATTGCGC ATTTACTATA TCATTTACTA ACAAATAAT TCTAGCCTCA	660
CCTGTTCTTG CAAAAGCCTC GGAATATCTT TTTCCAGATT TTTTCATCCA AATAGTTTTC	720



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GAAGCTTTTA TATCATCACC TTTTGAATAC AACTTATGTG TTAAAATTG AATGTCTGTA	730
TAAGATTCAT CCATTATTC ACTAATAATT TCACAAACTT TATCATCAAC TTAAACATTA	840
TCTATAACCA TTTCTTTTT ATAACGCGTA TAGCTACTTG TATTATTCTT TAAAATATCA	900
GCAACTGGCT TAGATCGTAA TCTTATAAAA TCTTGTTTAC TACGTTGAGT AGAAATTTTT	960
TTAAAATTAT AGTGATAGAA AAATAAATCA AAAGCAGAAA CATATTCTTT ACAATCACAA	1020
AAGACAACAT TTTTTTCAAT GCCATCCCAT CTGTCTGTG AAGAACTTCC AATATATTTA	1080
TTTTTGCGTA ATCTTTCCAT CTCATATTGT TTTTGAGGAG CATATGGTTC CCAATAATCT	1140
AATCCTTTTT TTGTTCCAGA ACGGCCTTTA AGAACTTCTA CATTTCTAGA AGCTTTAATG	1200
TTATAATATG AATAGATTAA ACATTGTTTC CCATCCACTT CATCTATTTG ATCAACATTT	1260
GTACTAAACC AATATTCAGA CACACTTTTA TTGGCTGGAG AACCATATAA AGCTTGTAAG	1320
ATTGAAGTTT TATTTACTCC ATATCTATTA CAGACACCTC AGGATTATTT AACTTATAAG	1380
TTTTAACAGC TACCGAATCA ATTTCAACAG CAACTTGAAC ATCTATGCCT GATTTTTTAA	1440
GGCCACTTGT AGTGCCACCT GCACCGTTAA ATAAATCAAT AGCAACAATT TTCCCCATAG	1500
TATTCTCCTA AAGTTTCTCC TTTTATTAT AACATTATCA AATGTAAAAC CCAACCCGAT	1560
AGGGTTAGGT TTTTAACATC ATTTACCAA CTTCTTCATC TCATCAATAC GTGCGACGGT	1620
CGCGTCATAT TTAGCTTGGT AGTCAGCTTG TTTGTCGCAT TCTTTTGGGA CGACTTCTGG	1680
TTTGGCGTTG GCTACGAAGC GTTCGTTAGA GAGTTTCTTA CCAACCATGT CCAGTTCTTT	1740
TTGCCATTTA GCAAGTTCCT TGTCGAGACG GGCCAGTTCT TCTTCAACAT TGAGGAGATC	1800
GGCCAGTGGC AGGTAGATT CTGCTCCTGT GATGACACTT GACATAGCCA GTTCAGGTGC	1860
AGGGATGGTT GATGCCATTT CCAAGTGTTC TGGATTTGTA AAGCGTTGA TATAGTTGAC	1920
ATTGCTGTTA AAGAAGGCTT CCAAGTCGCT ATCGCTTGTC TTAACAAGGA TGGTGATAGG	1980
CTTGCTTGGT GCTACATTTA CTTCCGCACG CGCATTCCGA ACAGCACGAA TCAAGTCTTT	2040
GAGACTTTCC ACACCACTGT GAGCCGCAAG GTCTTCAAAG GCTAGATTAA CAGTTGGGTA	2100
TGCAGCTGTC ACGATAGAAC CTTCTGAGAT TTGTCCAAAG ATTTCTCTG TCACGAATGG	2160
CATGATTGGG TGAAGGAGAC GAAGGATCTT GTCCAGCGTA TAGAGGAGAA CAGATCGAGT	2220
AATGACCTTA TCGTCTTCAT TGTCGCTGTA TAGAACTTCC TTGGTCAACT CAACATACCA	2280
GTTGGCAAAT TCTTCCCAGA TGAAGTTGTA AAGGATATGA CCAGCCACAC CAAACTCGAA	2340
CTTATCAAAG TTTTCAGTAA CTTTGTCAAT GGTTCGTTG AGATTGTGGA GAATCCAGCG	2400
GTCCGTCACA TTACCAGCCT CACCTGTTGC AACTTTGTG ACATTGTCT GCGCCACATC	2460
CAGCGTCAAA CCTTCATTGT TCATGAGGAT ATAGCGAGAA ATGTTCCAAA TTTTGTAAAT	2520

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AAAGTTCCAT GAAGCATCCA TTTTCTCGTA AGAGAAACGA ACGTCTTGAC CTGGTCCGGA	2580
ACCGTTTGAA AGGAACCAAC GAAGGCGATC AGCACCGTAT TTCTCGATGA CATCCATTGG	2640
GTCAATCCCG TTACCGAGAG ATTTAGACAT CTTGCGTCCT TGCTCGTCAC GGATGAGACC	2700
GTGGATAAGC ACGTTTGGGA ATGGCTGACG ACCAGTAAAT TCCAAGGACT GGAAGATCAT	2760
ACGAGACACC CAGAAGAAGA TGATGTCGTA ACCTGTTACC AAGGTGGAAG TTGGGAAATA	2820
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AGAACTGAAC CAAGTATCCA AGACGTCTTC GTCCTGAGTC CATCCGTCAC CTTCTGGAGC	2940
TTCTTCGCCC ACATACATTT CACCATCAGC ATTGTAACAG GCAGGGATTT GGTGACCCCA	3000
CCAAAGCTGA CGAGAGATAA CCCAGTCGTG GACATTTTCC ATCCATTGAA GGAAGGTATC	3060
GTGAAACGA GGTGGGTAGA ATTCGACCTT GTCCTCTGTG TCTTGGTTAG CAATGGCGTT	3120
CTTAGCCAAT TGGTCCATCT TGACGAACCA TTGAGTAGAC AAGCGTGGCT CAACTACGAC	3180
ACCTGTACGT TCTGAGTGAC CAACACTGTG GACACGTTTT TCGATTTTGA CAAGGGCACC	3240
GATTTCTTCC AACTTAGCAA CGACTGCCTT ACGAGCTTCA AAACGATCCA TGCCTGAAAA	3300
TTCAAAGGCA AGCTCATTCA TAGTTCCGTC GTCGTTCATG ACGTTGACTT GTGGCAAGTT	3360
ATGACGTTGG CCAACCAAGA AGTCATTTGG ATCGTGGGCA GGTGTGATTT TCACGACACC	3420
AGTACCAAGC TCAGGATCTG CGTGCTCATC TCCAACGATT GGGATGAGTT TATTAGCGAT	3480
TGGAAGGATG ACGTTTTTAC CAATCAAGTC CTTGTAGCGC GGGTCTTCTG GATTAAACGC	3540
AACCGCAACG TCCCCAAACA TAGTCTCAGG ACGAGTTGTA GCAACTTCAA GGGCGCGTGA	3600
ACCATCTTCC AGCATGTAAT TCATGTGGTA GAAGGCACCT TCTACATCCT TGTGAATCAC	3660
CTCAATATCA GAAAGGCGTG TGGAGCTGC TGGGTCCGAG TTGATGATAA ACTCAGTACG	3720
ATAGATCCAG CCTTTCTTGT AAAGGTTTAC AAAGACCTTA CGAACAGCTT TTGACAAACC	3780
TTCATCAAGA GTGAAACGCT CACGAGAATA GTCTACAGAA AGCCCCATCT TGCCCCATTG	3840
TTCTTGATG GTAGTGGCAT ATTCGTCTTT CCATTCCCAG ACCTTCGTCA AGAAAGACTC	3900
ACGACCTAGG TCATAACGCG TAATACCCTC ACCAGGTAAG CGCTCCTCAA CCTTAGCCTG	3960
AGTCGCAATA CCAGCGTGGT CCATACCTGG AAGCCAAAGG GTATCAAAGC CTTGCATGCG	4020
TTTTTGACGG ATGATGATAT CCTGCAAAGT CGTATCCCAA GCGTGACCAA GGTGAAGTTT	4080
CCCAGTTACG TTTGGTGGTG GAATCACGAT TGAATAAGGC TTAGCCTTTT GATCGCCTGA	4140
AGGCTTGAAA ACATCCGCAT CAAGCCATTT TTGGTAACGA CCAGCCTCAA CCTCGGCTGG	4200
ATTGTATTTA GGTGAAAGTT CTTTAGACAT GTGTGTGTCC TTTCTCTATT TTGTTTATTT	4260

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TATTTTGAAT TTGCTTAGCA GCTTCTTCTG CAGACAAATT CGTATTATTT ATTTTAAAGT	4320
AGTGGTGCAA CTCATTCCGT TGATGTTGGG AATTTAATTG AAGTGTTTCA GCGGTCTCTA	4380
AAATTTCCTT TTCAGATACC TCAATATGTC GTTTTAAGGG TTTGTGCTTT AATCGATTCT	4440
CCGTTTCGATT TCGACGTATG CACTCTTCAA GACTTGTTTC CAATTCAACA AACAGAATCT	4500
CTTGATGAAA GTTATCCAAT AAATCCTGAA TTTGCTTTAA ATACATCAGC TGGTACTGAT	4560
TTGAAAAATC AATTACGTCT GTTAAAAATTA CTGATCGCTG ATTTCTTGCA CTTGCTCCAA	4620
GGAAAGAAAA GGTAATTCCA CGAACAAATT CCCACATCTC CTCGGTATAA TCCTGATAGA	4680
TCTCTAGTGC AAAATCAATG GCTTGATGGT TATAAAATAG GGTAGCATCC GTCAGTCGAG	4740
ATAATTCTTG ACCAATGGTC ATTTTTCCTG ATGCTGGAGC ACCAATGATG AAAAGATGCA	4800
TCAAATCACC TCCCCTCAC TCCTCAGCAA GCCATATCTC AAATCATCAC AGCAGTTGCC	4860
TTGAGCATCT TTGCGGTCTC TTATGCGAGC TTCGAGGGTA AAGCCAAGCT TTTCCGAGAC	4920
TCGTTGACTT TGAAGGTTAT ATCCAAAGCA AGTTAGTTCA ATCTTGTAAG GACCAAGTTC	4980
TTTAAAAGCT AGATCAATCA AGGAACACGC TGCTTCTGGA ACATAACCTC GACCCCAATA	5040
GTCTGGGTGC AAGGTATAGC CAAGCTCTAG CACATCATCC GCATGAAGAT GGTGAAGTC	5100
AACAGAACCA ATGACTTTAT CGGTTCTTTT GACGACAATC CCATAGCCAG CTGGGAGATT	5160
TTCTTTTGA GTACGCTCCG GAAGAATGTG CTCCAGATAA TAAATCTCAT CTTCCAAGAT	5220
CTTGACTGGA GGAAACCTG CTGGATAGGC GACCTCTGGC AAAGTAGCGT AGGTATGGAT	5280
ATCCTCAGCA TCCACCACTG TGCGGACTCG TAAAACGAGA CGTTCTGTTT CGATTTTATC	5340
TGGCAGCTCA GTTCTTGCCA TCCTTCTTCC TCGCTTTTTT GATGAAACTG CCCTTCATAT	5400
CTACACGCTT GTCCAGATAG CGATAAACGC GCTGATATCC ATCTCCCATG AAATAGGTTG	5460
GGGCAAACAG TTGATTTTTA AAATGTCCCT TTTCATCCAG GAGTCTGGG GCAACAAGTC	5520
GCTCAAGAAT CTTGGCAAAG ATGTGGCAAA TACCGTCTTC CTCACAATC CTATCTACCC	5580
GACAACTAA AACAAAGTGA CAGGCGTCTA AAATAGGAGT CTGAGTTCGT TCAGAAATTT	5640
CATAATGCAC TCCCAAACGT TCCAATTTCT CCTGATGACT GATAAAACCA GCCTGCTCCA	5700
TCGCAAGCAT AGAAGTTTCA TCAGAAATAT TCACAGTAAA TTTTGTATAC TGTTTGATCT	5760
GCTCTGCGGC ATTCTCTCTC GCAACGACTC CAATCACAAC CCAATCTCCT AGACTATAAG	5820
AGGAACTACA GGTCGTGATG TTATAGCCAA AATTCTAATC TTGATATCCT AAAATAAAAA	5880
CAGGAAAACC ATAATATAGT TTAATTGTGT TAAAAGATTG CTTTATAACA ACCCCCTTTG	5940
ACTAAGACGT AAAAGAAAAG CCCTGCCATC TACATGACAG GGACGAATGT GTTTATCCGC	6000
GGGG	6004

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## (2) INFORMATION FOR SEQ ID NO: 28:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5857 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 28:

TGTAGAATTC ACGACAATGC TTCGTTGATT TCTGGGTGA TTTCGTCGCG TTCTGGCAAG	60
CGAGTCAATG AACCAAAAAT AGTACACAAT GTGGTATAAT CCTTTTATGG CATATTCAAT	120
AGATTTTCGT AAAAAAGTTC TCTCTTATTG TGAGCGAACA GGTAGTATAA CAGAAGCATC	180
ACACGTTTTTC CAAATCTCAC GTAATACCAT TTATGGCTGG TTAAAGCTAA AAGAGAAAAC	240
AGGAGAGCTA AACCAACAAG TAAAAGGAAC AAAACCAAGA AAAGTTGATA GACATAGACT	300
TAAAAACTAT CTTACTGACA ATCCAGATGC TTATTTGACT GAAATAGCTT CTGACTTTGG	360
CTGTCATCCA ACTACCATCC ACTATGCGCT CAAAGCTATG GGCTACACTC GAAAAAGAA	420
CCACACCTAC TATGAACAAG ACCCAGAAAA AGTAGCCTTA TTTCTTAAGA ATTTTAATAG	480
TTTAAAGCAC CTAACACCTG TTTAGATTGA CGAAACAGGA TTCGATACTT ATTTTATCG	540
AGAATATGGT CGCTCATTAA AAGGTCAGTT AATAAGAGGC AAAGTATCTG GAAGAAGATA	600
TCAGAGGATT TCTTTGGTTG CAGGTCTAAC AAATGGTGAG TTAATCGCTC CAATGACTTA	660
CGAAGAGACG ATGACGAGCG ACTTTTTTGA AGCTTGGTTT CAGAAGTTTC TCTTACCAAC	720
ATTAACCACA CCATCGGTTA TTATTATGGA TAATGCAAGA TTCCATAGAA TGGGGAAGCT	780
AGAACTCTTG TGTGAAGAGT TTGGGTATAA ACTTTTACCT CTTCTCCCT ACTCACCTGA	840
GTACAATCCT ATTGAGAAAA CATGGGCTCA TATCAAAAAG CACCTCAAAA AGGTATTACC	900
AAGTTGCAAT ACCTTTTATG AGGCTTTTTT GTCTTGTTCT TGTTCATT GACTATATAA	960
ATTGTCTAAG CGAAACAACC GATAAGAATT GGCACAAAAG CGACCGTATT TTTGTTACCA	1020
ATACAGGAAA AACAGTTCAT AGTTCTATCT TGAGCAAGTC TCTCCAGCGA GCAAACGAAC	1080
GCCTTAAAAA ACCAATTCCT AAACATCTGT CCCCTCACAT CTTCAGACAC ACCACTATTA	1140
GCATCTTATC AGAAAATAAA ATTCCTTTAA AAACAATCAC GGACAGGGTT GGTATCCCCG	1200
ACTCTGAAGT CACTACTTCC ATCTACACCC ACGTCACAAA GAACATGAAA GATGAAGCAA	1260
TCAATGTACT GGATAAAGTT ATGAAAAAGA TTTTAAAAA AGTTTGTGCC CTTTTTGGCC	1320
CTCTAAATAC AAAAATAGCC CTTCCGATAA AATCCGAGGG GCTAGAAACG TTGTTAAATC	1380

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AACGGCCGAA	CTTTTGAATT	TCATGGTTCG	GGATAAAATA	GTTCACGTAA	CTATTTTATT	1440
TTTTAAGGTT	ATCATAATAT	CAAATAGTTC	AATTAAATAC	GCTAAATTAC	TAATATACTT	1500
TTTACCTTTT	TCATTCTAAA	ATGTAAAGTA	CAAACAATTA	CAATATACTA	GAGGGGGAGT	1560
AAAAAAGGTA	TTAAATCGAT	GAGTTCAGCA	GGCAAGAAAA	TAGCACCTTT	ACGGGTGCTA	1620
TTTTTTAATT	AACGCCACGT	TAACTTTTGA	TTGATGAATT	TTATTGTTTG	GCACCTCTTT	1680
CATTTACACG	TAAACATCGA	TGAAATTCTT	TCCAACATTA	TTTTTGGAGT	TAACGCATT	1740
TATTTTTGTA	TTAATAACTT	TTTAGTATC	GAAAGAATGG	TTTAAGAAAT	CCATAACTAA	1800
CTCTCCTTTC	TCATCCTGTA	ATCAAGATTT	TTATCAATGT	CAAAATAGTA	TTTTCTATCA	1860
ATCCAAATTG	GTCTTCTCC	TTTAGAAATA	GCAAGTACAT	CTACCGGACC	TCCTACTGTT	1920
TCAAGAGTGT	TGACAATTTT	TCTCTTAAAT	GAAGTTAATT	CAATAAATGT	TTTAGCTGTA	1980
CTCGCCATTT	CATTAAGTGG	TTGCATTCCA	ATAAGGTCTA	TTATAGGATT	TATATAATAT	2040
TTTTGCTGTA	TAGATGATAT	ATTTTCAAAT	ATATTCTCAA	TTTCATCACC	CAATCCATTT	2100
TTCTCCATAA	CTGATGATAC	TTGCTCTGCG	ATATATACAT	TTAAGTTAGG	ATCTATACCA	2160
TTCATAATCG	TCTCAACCAT	CTCTGACTGT	GCAAAAGGGA	TTATATGACA	AGTTTTATGA	2220
TGATTTATCA	CACTTTCATT	AATAACTTTC	CAAATTAATC	GTTTAGAAAA	AATTCCATAT	2280
AATTCAATTT	GTCTTATAGA	TGGAAATATC	TCGTCTGTAC	CATAACCTGC	TATAACTAAT	2340
CCAGTTATGT	TTGTTGAGTC	ATATCCAATG	AAAATCGCTT	TATATAAAGA	TTTAGCAATA	2400
ACTTCAACCT	CATCATCAGT	ATGAGGAAAG	GATTTAAAAA	CATCGTCTAC	AATGCTTTTT	2460
ATTAACCTTA	ACTCAGCTTC	AAAAAATTC	AAATTACTTT	CAGCTTCTAC	TTTTGAAATT	2520
TCTAAACTAA	AATTAGTTAT	AGCATTTAAT	AAAATTTTAT	TAAAATCATC	TAGAGTGATG	2580
GTTTCACCAT	TAGAAACTCT	TAAATCAGCT	GTTTCTTGCG	CTTCATAGGC	AATGCTGTCC	2640
AAAATACTTC	TTGTACTTCT	GACAAATATA	TTTCTTAATA	AATCCTCAAC	TTGTAGATGT	2700
TTAAAGGAAA	TTAAAAATTC	TATTAGCTTT	TCAACGTATT	GGGCAGTATT	ATCTAATAAA	2760
TCTGTGCCAA	TAGCCTGCTT	AAACTCATTT	AAAATTACCT	CCCACGGAAT	TTCCATAAAC	2820
GAAGCGTTCC	CATATATCAT	GATCCCCACG	GAATGTTCTT	TTGATAAAGT	GAATAATTTT	2880
CGGGCGCTAT	TAAAAACTTT	TGAATTTTTC	CCGTCTGATA	AGGTTACAGC	GCTATCAGAA	2940
GCCAATACAA	CACCATTTTT	ATTTAATATT	CCAATTTCTG	CTGTCAAAAT	ATCACCTAAA	3000
CTTCTTAAAC	CTGCTCATGC	TCTAATGGTA	CAACAGCTAA	GGTCTTACCA	AGACTTGCCA	3060
ACACTTTTAA	TACTGTATCA	AGTTGTGGGC	TTGTCTTTCC	TGTTTCCATT	CTAGCGATAA	3120
CTGGCTGACT	AACACCGCTC	ATCTCCTCTA	GTTTCTTCTG	ACTAATACCC	TTTTCATTTT	3180

TAGCCTCGAT AAGCTCACTC ATGATAGCCA CGCGCATATC ACTTTCCAAA ATTTCTCTTT	3240
TGCTGAATAA TTCAGCTCTT ACATCTTTCC AGTTACTACC AATAGCATT A TTTTTCATTG	3300
TCTAAACCTC TTTCTTTTAA ATCTGCAAGT TCACGTTTAC CTTGCTCAAT CTCTCTTTTG	3360
GGTGTTTTCT GTGTCCTTTT CATAAAATGA TGCAGTAAAA CAAAACCTACC ATCCATCCAA	3420
GCAACAAATA AAATTCTATC TCTAAGTGGT CTCAGCTCCC AAATTTCAAGC ATCTAAATGC	3480
TTAATATATG GTTCGCCTGC GCGTGTCCA TGTGGCTTA ACAACTCAAT ATAATCATT A	3540
ATTTTATTAA GCTTAATTCT GCTATCTTTC CCTTTTTTAC TGGTAAGCTC TCGCATATAA	3600
TCAAAAACAG GCTCATTGCC GTTTTATCC TTGTAAAAAT AGATATTATG CACTATTAAC	3660
ACCTCTTCCT AATAACAATT ATAACCTAAA AGTTATTGTT TGTAAATACT TTTAAGTTAT	3720
TAAAATAAAA AGCACCTAGT TTCCTAGATG CTAGCACAAT GACACGGATT CGCACCGTGG	3780
CTACCTCTAT CAAGGTGTAC TCCTTCTATA CTATCCCTTG TGCTTTAGAA TATTATACCA	3840
CACAATCAAC TAGATACCTA CCATCTCATG ATATACCCCC ATTTTGGGCA AGGGTACAAC	3900
GCTAAAATAC AAATCAGAAT AGATATTAAA CCACTTATTT AACTTATCAT AAGCTGGTGA	3960
TTGACTGATA AATAATATCC GCTGACAAGC TCCGATAACA TTCATGTGAT TGTACACATA	4020
AACCTCTTTT ACAGCCTCTA AAATGTCAGC CTCACTTGT TGTACCCTAA TATCTGTTAT	4080
CTGCTTGATA GTTGCCTATT TTTGATAAGC TAGCATATCT TGATTTTATAG CAGCATCAAA	4140
CATTTTACGC TCAAGGACAC TATACTTAGG TTGTTCTTTA TCTCGCATGA AATACCACTT	4200
GAGCCATAAA ATCTTTTCTC GGTGTATTAC AGAAATACGC TCAATTTTCT TCTTTGTCAT	4250
TGCTACCTCC TAAATCATCA ATTTAACAAT TCTAACCACT CACTTTTAGA AATAGTTGCA	4320
TAGATCTTGT TCGATGTATG ATACAAAGGT TCTAAATCTT TTTCCACCCT AATATAGTTC	4380
ATCTTATCCT CATGAGTAGG AAAGTATAGT ATTTCCGTTT CATCCTCGTT TAGGATACGA	4440
TTGCACCAAT CATCAATAAT AACTGGCACT TCCCACTCAC GCCATTTTTT AAGGTTTTCT	4500
AAAAGTTCAT TATCACTAAA TAGCTCGCCA TCTATTTGGA AAAATTCCCC TAAGTCATTG	4560
TTTCCTTCAA CAATAATAAA CTCTGGCATA TTTCTATTAC TTAATAACTC CTTGAGTTCT	4620
TGTAACCTCT TGATTTCTTT TAGATACTTC CTCAATTTCC AACCTCAATT CTTCAATCTG	4680
CCTTACTACT CCAAAAATTT CATGGGTCTT ATAAGATTGT TCAAGTATAG CCTTTGCTGC	4740
TTGAGTTCTT ATAAACGGGT TGACCTTACT GTCCATCATA ATATCATTGA GTACAGAAAC	4800
AGCGTTAGAT GATGCTAAAT AAAGCATTTG AGTTGTTTTA TCCATCATCT CATCTTGCTT	4860
TATCCTCAAT GTCTTTTAA CCGCTGCAAC TTTTAGATAC TTATGACCTG TTGCGCGTGA	4920

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TACCCCTGCT TTTGACATG CTTGTCTAT CGTTGGCTCG GTAAGCATGG CATCTATGAA	4980
TTTAATTTGC TTGGACGTAA GGTATCATT TTCATTTCTT GCCATCTATT ACCTCCTCAT	5040
TATCAAAATA AAGGGTTGCC CCTTTATTTT CCTATGCTAG ATAATTCTGC AATTCTGCAT	5100
CCATTGCCTC TGAATTGCCC TCAACAATCA TTTCATGCTG TACTAAATCA ATCTTATCTC	5160
CGTTAATAAG TAAACCACCG TGGAAATAAT CAATTTTTCT ATCAAGGAAA TGTACTAGCT	5220
TTTCAAGGCG TTGCTGTTGG CTGAATTGCT CCATGTCAAT TTCGATATAA GCAAGGGTAG	5280
TATCATTATC CATAATATCT TCTAATTTTC TAAGAGCTAG AGGTTTATTT TTATATTTTT	5340
CTAGGTATTC TCTCATTTCT GCCACTGTTA ATTTGATACT AGATAATAAA CTTAGTTCAG	5400
CTGCATCATC TGCTGTAATA GGCTCTTCTT TTGATTCAAT GTTTGCTAGT TCAGCATTTT	5460
TCTCTTTTTT TAGTTGCTGA TACAATAGCT GAGCAGTATT TTGGGAATAG TTTTCGCCCT	5520
CTTTTTTATA TTTTAAAAGT TCTTGCTCTG CATACACTTT CCCGATAATC ACTTCCTTAT	5580
AAACTAATG CCCATCTTGA GCTTTTAGCT TAATACTCCC ATGCTCTGGA ATTTCAATAT	5640
ACTTAATTAT ACCATTTTTT GAGTATAAAA CAAAGCCTTT CTCCATCATT TTTAATAATT	5700
TATCATCCTT GTTTTCAGTC ATGCTTTTCT CTTTTATTTC ATTTTATTAT AATCTGAATA	5760
CCCCTAGTCT ATTTATTTCA CTAGGTTTTT AGGGTTCGTA TGCTAAAATA CTACCCTTTT	5820
TGTGTACCTT ATGGCTGACT TTTCAAATTG GTTAGTT	5857

(2) INFORMATION FOR SEQ ID NO: 29:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 10254 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 29:

AAAATGATAG CAGGAGAGTT TTCCCGTCCA TCAGACCCAG AACTGAGAGC CTTAGCTCAG	60
GCTTCTCGCC AAAACAGGC CGCCTTTAAC AAGGAAGAGA ACCCCTTGAA GGGAGCCGAA	120
ATCATCAAGA CTTGGTTTGC CTCAACCGGG AAAAATCTTT ACATCAACAC TCGCTTGATG	180
GTGGACTACG GTGTCAACAT CCATCTAGGG GAAAATTTTT ATTCTAATTG GAACTTGACC	240
ATGCTGGATA TCTGTCCCAT TCGTATCGGG GACAATGCTA TGATTGGTCC TAATTGTCAG	300
TTTTTGACAC CCCTCCATCC ACTAGATCCA CAGGAACGCA ATTCAGGTAT CGAGTACGGA	360
AAGCCTATCA CAATCGGAGA TAATTTCTGG ACTGGTGGTG GCGTCATTGT CCTTCCTGGA	420
GTGACACTGG GAAATAATGT CGTTGCAGGA GCAGGGGCAG TAATTACCAA ATCTTTTGGC	480

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GACAACGTTG TCCTAGCTGG CAATCCTGCG CGCGTGATTA AGGAAATACC TGTAAATAG	540
AAGTAAAAAG GAACAGCTGG GGTGTTTCT TTTTGTAGG TTTCATCATT TTTTACCCAG	600
TTACATTTA CCTACTCTAT CTCTTAGCAA GTCTGTTTCA TTAAGCAAGT TCAAAGCATC	660
TCGTAAGTGG GATGTTTTTC TCCTCAGTTC ATCAGCTTCC TCCTTGACAC TCGGTCAGAT	720
TTTGATACAA TAGTACAAAA TTAGAGGAGG CAGGCTATGA TTCAGAAACA TGCGATTCCT	780
ATTTTAGAGT TTGATGACAA TCCTCAGGCG GTTATCATGC CCAATCACGA GGGGCTGGAC	840
TTGCAGTTGC CAAAGAAGTG TGTTTATGCA TTTTLAGGTG AGGAGATTGA CCGCTATGCG	900
AGGGAAGTAG GGGCGAAGTG TGTGGCGAA TTTGTTTCTG CCACCAAGAC CTATCCAGTT	960
TATGTCGTGA ACTACAAGGA CGAGGAGGTC TGTCTGGCTC AGGCTCCTGT TGGCTCCGCT	1020
CCAGCAGCCC AGTTTATGGA TTGGTTGATT GGCTATGGTG TGGAGCAGAT TATCTCTACT	1080
GGGACCTGTG GTGCTTAGC TGATATAGAG GAAAATGCCT TTCTAGTCCC TGTTCGCGCT	1140
CTGCCAGATG AAGGAGCCAG TTACCACTAT GTGGCACCTT GTCGTTATAT GGAAATGCAG	1200
CCAGAGGCTA TTGCTGCTAT TGAGGAAGTT TTGGAAGACA GAGGGATTCC TTATGAAGAA	1260
GTCATGACCT GGACGACAGA CGGTTTTTAC CGAGAAACGG CTGAAAAGGT GGCTTATCGT	1320
AAGGAAGAAG GCTGTGCTGT TGTGGAGATG GAGTGTCTG CTCTTGCGGC AGTAGCTCAA	1380
TTGCGTGGGG TTCTCTGGGG TGAATTGTTG TTCACAGCAG ATTCTCTAGC GGAATTGGAC	1440
CAGTACGACA GTCGTGACTG GGGCTCGGAA GCTTTTAATA AGGCGCTAGA ACTGAGTTTA	1500
GCAAGTCTC ACCACCTTTA GTTGTAAGTG CAAAGGATTG GTTTTATCAT AAAATGTCTA	1560
GCTCATACTT TTCAAAAATA TGTTTAAACG AGGTCACCTT CCTCTGTCC TAGGCATGTT	1620
GAGGTGCGGA AAAATCTTTA AAATCAGAAA AACGTATCAT ATCAGGTGAT GAAAACCTTG	1680
AACTATGCG TTTTATGTCG ATAAGATTTA GAGTGAGATG AAATGATACT CTTGAAAAAT	1740
CTCTTCAAC CAGGTCAGCT TCACCTTGCC GTAGGTATAT GTTACTGACT TCGTCAGTCT	1800
TATCCGGCAA CCTCAAAACG GTGTTTTGAG CTGACTTCGT CAGTCTATT TGCAACCTCA	1860
AAACAGTGT TTGAGCAACC TGTGACTAGC TTTCTAATCG ATGCCTTGGT TTTTATTGCC	1920
TATAATCAAA AAGAGAAATT TTCTCCTGAA AAGCATATAG AGTAGCTGGC GTTAAAAGCT	1980
CCTGTCTGC TTTTGTGACC TATAGTCACA TCTATCAAGT ATTGTTCTTG CCTAAGCTAT	2040
CAATAAAAAG GTGGCATTTT TTAGGCTTGG TGTTAGTAGA TTTTGCCTTA TCCTATCTAA	2100
GTCATTTTGA ACTTTTTATG GTACAATGGA AACATGTTAT TCAAATTATC TAAGGAAAAA	2160
ATAGAGCTAG GCTTATCTCG TTTATCGCCA GCCCGTCGTA TTTTTTGGAG TTTTGCCTTG	2220



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GTCATTTTAC TAGGCTCTCT TCTTTTGAGC TTGCCCTTTG TCCAAGTTGA AAGCTCACGA	2280
GCGACTTATT TTGATCATCT TTTCAC TGCTCTGCAG TCTGTGTGAC GGGTCTCTCA	2340
ACCCCTCCAG TAGCTCACAC CTATAATATC TGGGGTCAAA TAATCTGTTT GCTCTTGATT	2400
CAGATCGGTG GTCTAGGGCT CATGACCTTT ATTGGGGTTT TCTATATCCA GAGCAAGCAA	2460
AAGCTTAGTC TTCGTAGCCG TGCAACTATT CAGGATAGTT TTAGTTATGG AGAAACTCGA	2520
TCTTTGAGAA AGTTTGTTCTA TTCTATTTTT CTCACGACCT TTTTGTTTGA GAGCTTGGGA	2580
GCTATTTTGC TTAGTTTTCG CCTTATTCCT CAACTTGGCT GGGGACGTGG TCTTTTTAGT	2640
TCCATTTTTC TAGCGATCTC AGCCTTCTGT AATGCCGTT TTGATAATTT AGGGAGCACC	2700
AGTTTATTTG CTTTTCAGAC CGATTTACTG GTCAATCTGG TGATTGCAGG CTTGATTATT	2760
ACAGGCGGCC TTGGTTTTAT GGTCTGGTTT GATTGGCTG GTCATGTAGG AAGAAAGAAA	2820
AAAGGACGTC TGCACTTTCA TACGAAGCTT GACTATTAT TGAATATAGG TTTGTTGTTA	2880
TTTGGAACAG CAACTACTCT CTTTCTTGAG TGGAAACATG CTGGAACGAT TGGCAATCTC	2940
CCTGTTGCCG ATAAGGTTTT AGTTAGCTTT TTTCAAACAG TGACGATGCG AACAGCTGGC	3000
TTTTCTACGA TAGATTATAC TCAGGCTCAT CCTGTGACTC TTTTGATTTA TATCTTACAG	3060
ATGTTTCTAG GTGGGCGACC TGGAGGAACA GCTGGGGGAC TCAAGATTAC GACATTTTTT	3120
GTCCTCTTGG TCTTTGCACG AAGTGAGCTT CTAGGCTTGC CTCATGCCAA TGTTCGAGA	3180
CGAACGATCG CGCCGCGAAC GGTTCAAAAA TCCTTTAGTG TCTTTATTAT CTTTTTGATG	3240
AGCTTCTTGA TAGGATTGAT TCTGCTAGGG ATAACAGCCA AAGGCAATCC TCCCTTTATC	3300
CACCTCGTAT TTGAAACCAT TTCAGCTCTT AGTACAGTTG GTGTAACGGC AAATCTGACT	3360
CCTGACCTTG GGAAATTGGC TCTCAGTGTT ATCATGCCAC TTATGTTTAT GGGACGAATT	3420
GGTCCCTTGA CCTTGTTTGT TAGCTTGGCA GATTACCATC CAGAAAAGAA AGATATGATT	3480
CACTATATGA AAGCAGATAT TAGTATTGGT TAAGAAAGGA AAGAGCATGT CAGATCGTAC	3540
GATTGGAATT TTGGGCTTGG GAATTTTGG GAGCAGTGT CTAGCTGCCC TAGCCAAGCA	3600
GGATATGAAT ATTATCGCTA TTGATGACCA CGCAGAGCGC ATCAATCAGT TTGAGCCAGT	3660
TTTGGCGCGT GGAGTGATTG GTGACATCAC AGATGAAGAA TTATTGAGAT CAGCAGGGAT	3720
TGATACCTGC GATACCGTTG TAGTCGCGAC AGGTGAAAAT CTGGAGTCGA GTGTGCTTGC	3780
GGTTATGCAC TGTAAGAGTT TGGGGGTACC GACTGTTATT GCTAAGGTCA AAAGTCAGAC	3840
CGCTAAGAAA GTGCTAGAAA AGATTGGAGC TGACTCGGTT ATCTCGCCAG AGTATGAAAT	3900
GGGGCAGTCT CTAGCACAGA CCATTCTTTT CCATAATAGT GTTGATGTCT TTCAGTTGGA	3960
TAAAAATGTG TCTATCGTGG AGATGAAAAT TCCTCAGTCT TGGGCAGGTC AAAGTCTGAG	4020

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TAAATTAGAC CTCCGTGGCA AATACAATCT GAATATTTTG GGTTCGAG AGCAGGAAAA	4080
TTCCCCATTG GATGTTGAAT TTGGACCAGA TGACCTCTTG AAAGCAGATA CCTATATTTT	4140
GGCAGTCATC AACAACCACT ATTTGGATAC CCTAGTAGCA TTGAATTCGT AAAGAGGGAT	4200
GACCCCTCTT TTTTGATGCC TAAGATGGCA AATAGAGACA GAAGCCCTT GTCTTCTAGT	4260
AAAAGTTCTT CAAAGGCTGG ACTTTATGGT AAAATAGAAA GAAGTGACAA GAGAGAGTAA	4320
TACTCAATGA AAATCAAAGA TCAAACCTAGG AAACCTAGCTA CGGGCTGCTC AAAACACTGT	4380
TTTGAGGTTG CAGATAGAAC TGACGAAGTC AGTAACATCT ATACGCAAG GCGACGTTGA	4440
CGCGGTTTGA AGAGATTTTC GAAGAGTATA AGAAAAATC AGTCCCTAA AGGAGTAGAT	4500
TATGAAGTTA TTGTCTATCG CAATTTCTAG CTATAATGCA GCAGCCTATC TTCATTACTG	4560
TGTGGAGTCG CTAGTGATTG GTGGTGAGCA AGTTGGGATT TTGATTATCA ATGACGGGTC	4620
TCAGGATCAG ACTCAGGAAA TCGCTGAGTG TTTAGCTAGC AAGTATCCTA ATATCGTTAG	4680
AGCCATCTAT CAGGAAAAATA AATGCCATGG CGGTGCGGTC AATCGTGGCT TGGTAGAGGC	4740
TTCTGGGCGC TATTTTAAAG TAGTTGACAG TGATGACTGG GTGGATCCTC GTGCCACTT	4800
GAAAATCTT GAAACCTGC AGGAACTGA GAGCAAAGGT CAAGAGGTGG ATGTCTTTGT	4860
GACCAATTTT GTCTATGAAA AGGAAGGGCA GTCTCGTAAG AAGAGTATGA GTTACGATTC	4920
AGTCTTGCCCT GTTCGGCAGA TTTTGGGCTG GGACCAGGTC GGAAATTTCT CCAAAGGCCA	4980
GTATACCATG ATGCACTCGC TGATTTATCG GACAGATTTG TTGCGTGCTA GCCAGTTCTA	5040
ACTGCCTGAA CATACTTTT ATGTCGATAA TCTCTTTGTC TTTACGCCCC TTCAGCAGGT	5100
CAAGACCATG TACTATCTGC CTGTCGATTT CTATCGTTAT TTGATTGGGC GTGAGGACCA	5160
GTCTGTCAAT GAGCAAGTGA TGATTAAGTG CATTGACCAG CAACTCAAGG TCAATCGACT	5220
CTTGATAGAC CAACTTGATT TGTCCCAAGT GAGTCATCCC AAAATGCGAG AATATCTGCT	5280
GAATCATATT GAACTCACGA CGGTGATTTT CAGTACCCTG CTCAACCGAT CTGGAACAGC	5340
GGAGCATCTG GCAAAAAAAC GCCAATTGTG GACCTATATT CAGCAGAAAA ATCCAGAAGT	5400
CTTTCAGGCT ATTCGTAAGA CCATGTTGAG CCGTTTGACC AAACATTCTG TCTTGCCAGA	5460
TCCGAACTG TCCAATGTG TCTATCAAAT CACCAAATCT GTTTATGGAT TTAATTAATA	5520
TAAGTGTTTT ATAAGAGGGA TTTAAGAAAA ATTTAACTT TTTCTTAGTC CTTTTTAATT	5580
TCAGGAGATT ATACTAGAGT CATCAAATAA AGAAAGACTC TAAGGAGAAT CCTATGAAAT	5640
TCAATCCAAA TCAAAGATAT ACTCGTTGGT CTATTCGCGG TCTCAGTGTC GGTGTTGCCT	5700
CAGTTGTGT GGCTAGTGGC TTCTTTGTCC TAGTTGGTCA GCCAAGTTCT GTACGTGCCG	5760

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ATGGGCTCAA	TCCAACCCCA	GGTCAAGTCT	TACCTGAAGA	GACATCGGGA	ACGAAAGAGG	5820
GTGACTTATC	AGAAAAACCA	GGAGACACCG	TTCTCACTCA	AGCGAAACCT	GAGGGCGTTA	5880
CTGGAAATAC	GAATTCACCT	CCGACACCTA	CAGAAAGAAC	TGAAGTGAGC	GAGGAAACAA	5940
GCCCTTCTAG	TCTGGATACA	CTTTTGTAAA	AAGATGAAGA	AGCTCAAAAA	AATCCAGAGC	6000
TAACAGATGT	CTTAAAAGAA	ACTGTAGATA	CAGCTGATGT	GGATGGGACA	CAAGCAAGTC	6060
CAGCAGAAAC	TACTCCTGAA	CAAGTAAAAG	GTGGAGTGAA	AGAAAATACA	AAAGACAGCA	6120
TCGATGTTCC	TGCTGCTTAT	CTTGAAAAAG	CTGAAGGGAA	AGGTCCTTTC	ACTGCCCGTG	6180
TAAACCAAGT	AATTCCTTAT	GAATATTTCG	CTGGTGATGG	TATGTTAACT	CGTCTATTAC	6240
TAAAAGCTTC	GGATAATGCT	CCTGGTCTG	ACAATGGTAC	TGCTAAAAAT	CCTGCTTTAC	6300
CTCCTCTTGA	AGGATTAACA	AAAGGGAAAT	ACTTCTATGA	AGTAGACTTA	AATGGCAATA	6360
CTGTTGGTAA	ACAAGGTCAA	GCTTTAATTG	ATCAACTTCG	CGCTAATGGT	ACTCAAACCT	6420
ATAAAGCTAC	TGTTAAAGTT	TACGGAAATA	AAGACGGTAA	AGCTGACTTG	ACTAATCTAG	6480
TTGCTACTAA	AAATGTAGAC	ATCAACATCA	ATGGATTAGT	TGCTAAAGAA	ACAGTTCAAA	6540
AAGCCGTTCG	AGACAACGTT	AAAGACAGTA	TCGATGTTCC	AGCAGCCTAC	CTAGAAAAAG	6600
CCAAGGGTGA	AGGTCCATTC	ACAGCAGGTG	TCAACCATGT	GATTCCATAC	GAATCTTTCG	6660
CAGGTGATGG	CATGTTGACT	CGTCTCTTGC	TCAAGGCATC	TGACAAGGCA	CCATGGTCAG	6720
ATAACGGCGA	CGCTAAAAAC	CCAGCCCTAT	CTCCACTAGG	CGAAAAACGTG	AAGACCAAAG	6780
GTCAATACTT	CTATCAAGTA	GCCTTGGACG	GAAATGTAGC	TGGCAAAGAA	AAACAAGCGC	6840
TCATTGACCA	GTTCCGAGCA	AAYGGTACTC	AACTTACAG	CGCTACAGTC	AATGTCTATC	6900
GTAACAAAGA	CGGTAAACCA	GACTTGGACA	ACATCGTAGC	AACTAAAAAA	GTCACTATTA	6960
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CAGGTGTCAA	CCATGTGATT	CCATACGAAC	TCTTCGCAGG	TGATGGTATG	TTGACTCGTC	7140
TCTTGCTCAA	GGCATCTGAC	AAGGCACCAT	GGTCAGATAA	CGGTGACGCT	AAAAACCCAG	7200
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TGGACGGAAA	TGTAGCTGGC	AAAGAAAAAC	AAGCGCTCAT	TGACCAGTTC	CGAGCAAACG	7320
GTACTCAAAC	TTACAGCGCT	ACAGTCAATG	TCTATGGTAA	CAAAGACGGT	AAACCAGACT	7380
TGGACAACAT	CGTAGCAACT	AAAAAAGTCA	CTATTAACAT	AAACGGTTTA	ATTTCTAAAG	7440
AAACAGTTCA	AAAAGCCGTT	GCAGACAACG	TTAAGGACAG	TATCGATGTT	CCAGCAGCCT	7500
ACCTAGAAAA	GGCCAAGGGT	GAAGGTCCAT	TCACAGCAGG	TGTCAACCAT	GTGATTCAT	7560

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ACGAACTCTT CGCAGGTGAT GGCATGTTGA CTCGTCTCTT GCTCAAGGCA TCTGACAAGG	7620
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TGAAGACCAA AGGTCAATAC TTCTATCAAG TAGCCTTGGA CGGAAATGTA GCTGGCAAAG	7740
AAAAACAAGC GCTCATTGAC CAGTTCCGAG CAAACGGTAC TCAAACCTAC AGCGCTACAG	7800
TCAATGTCTA TGGTAACAAA GACGGTAAAC CAGACTTGGA CAACATCGTA GCAACTAAAA	7860
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CTTCTAACTC TGGTCTGGC GTGACTCCGA TGAATCACAA TCATGCTACA GGTACTACAG	7980
ATAGCATGCC TGCTGACACC ATGACAAGTT CTACCAACAC GATGGCAGGT GAAAACATGG	8040
CTGCTTCTGC TAACAAGATG TCTGATACGA TGATGTCAGA GGATAAAGCT ATGCTACCAA	8100
ATACTGGTGA GACTCAAACA TCAATGGCAA GTATTGGTTT CCTTGGGCTT GCGCTTGCA	8160
GTTTACTCGG TGGTCTAGGT TTGAAAAACA AAAAAGAAGA AAATAATCA GCTAAGGAAA	8220
TAAATGATGG ATAGTGGGCT GACTAAGATT AGTTTAAACA CTCAATCAGC AATCAGGACT	8280
TTCTTTCAAT AGCAGATTAA AATCATCGTA AAACAATAAA AATAGTGTTA TACTTAAAGC	8340
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ATTATCACAG ATGTCATGAT GCCTCGGATG GATGGTTATG ATTTAATCAG TGAGGTTCAA	8580
TACTTATCAC CAGAGCAGCC TTTCCTATTT ATTACTGCTA AGACCAGTGA ACAGGACAAC	8640
ATTTACGGCC TGAGCTTGGG AGCAGATGAT TTTATTGCTA AGCCTTTTAG CCCACGTGAG	8700
CTGGTTTTGC GTGTCCACAA TATTTTGCGC CGCCTTCATC GTGGGGGCGA AACAGAGCTG	8760
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ATGCTGGATT TAACTGTTAA ATCATTTGAA TTGCTGTGGA TTTTAGCTAG TAATCCAGAG	8880
CGAGTTTTCT CCAAGACAGA CCTCTATGAA AAGATCTGGA AAGAAGACTA CGTGGATGAC	8940
ACCAATACCT TGAATGTGCA TATCCATGCT CTTGACAGG AGCTGGCAAA ATATAGTAGT	9000
GACCAAACCT CCACTATTAA GACAGTTTGG GGGTTGGGAT ATAAGATAGA GAAACCGAGA	9060
GGACAAACAT GAAACTAAAA AGTTATATTT TGGTTGGATA TATTATTTCA ACCCTCTTAA	9120
CCATTTTGGT TGTMTTTTGG GCTGTTCAAA AAATGCTGAT TGCGAAAGGC GAGATTTACT	9180
TTTTGCTTGG GATGACCATC GTTGCCAGCC TTGTCGGTGC TGGGATTAGT CTCTTTCTCC	9240
TATTGCCAGT CTTTACGTCG TTGGGCAAAC TCAAGGAGCA TGCCAAGCGG GTAGCGGCCA	9300

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AGGATTTTCC TTCAAATTG GAGGTTCAAG GTCCTGTAGA ATTTGAAJCAA TTAGGGCAAA	9360
CTTTTAATGA GATGTCCCAT GATTTCAGG TAAGCTTTGA TTCCTTGGA GAAAGCGAAC	9420
GAGAAAAGGG CTTGATGATT GCCCAGTTGT CGCATGATAT TAAGACTCCT ATCACTTCGA	9480
TCCAAGCGAC GGTAGAAGGG ATTTTGGATG GGATTATCAA GGAGTCGGAG CAAGCTCATT	9540
ATCTAGCAAC CATTGGACGC CAGACGGAGA GGCTCAATAA ACTGGTTGAG GAGTTGAATT	9600
TTTTGACCCT AAACACAGCT AGAAATCAGG TGGAACTAC CAGTAAAGAC AGTATTTTTTC	9660
TGGACAAGCT CTTAATTGAG TGCATGAGTG AATTTCAGTT TTTGATTGAG CAGGAGAGAA	9720
GAGATGTCCA CTGTCAGTA ATCCCAGAGT CTGCCCGGAT TGAGGGAGAT TATGCTAAGC	9780
TTTCTCGTAT CTGGTGAAT CTGGTCGATA ACGCTTTTAA ATATTCTGCT CCAGGAACCA	9840
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GGCAGGGTAT TGCCCCAGAG GATTTGGAAA ATATTTTCAA ACGCCTTTAT CGTGTGCGAAA	9960
CTTCGCGTAA CATGAAGACA GGTGGTCATG GATTAGGACT TGCGATTGCG CGTGAATTGG	10020
CCCATCAATT GGGTGGGGAA ATCACAGTCA GCAGCCAGTA CCGTCTAGGA AGTACCTTTA	10080
CCCTCGTTCT CAACCTCTCT GGTAGTGAAA ATAAAGCCTA AAACCCCTTT ACAAAATCCAG	10140
CTATTCATGG TAGAATAGAT TTTGTGTGAA ATATCAGCAG GAAAGCATGA AGCTCGTCAA	10200
CAGGTGTCTT ATGACAAGTA ACCTTGGCTG TTTAGGCGAA GGGCATCTGC ACGG	10254

## (2) INFORMATION FOR SEQ ID NO: 30:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 9769 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 30:

CCGGCGACTA TCGATAACAC TTGACTTGGT AGCCCCACAT TTTGGACAAC GCATCCTTTC	60
CCTCCTTATC GTTTTCTTTT CATTATACCA TTTTAAAGC GATTCCTCAA ACAATTCTTC	120
TTTTTGCTTG ACAAGTTTTT TGTTTTGTG TATTATTTAA TTAAGACAAC AAGGTAAAAG	180
AAAGGAGACT AAGATGTCCT GGACATTTGA CAACAAAAA CCCATCTATT TACAGATTAT	240
GGAGAAAATC AAGCTTCAGA TTGTTTCCCA TACACTGGAA CCAATCAAC AACTTCCAAC	300
CGTGAGGAGC TAGCTAGCGA GGCTGGTGTC AATCCCAATA CCATCCAAAG AGCCTTATCA	360
GACCTTGAAC GAGAAGGATT TGTCTACAGC AAGCGAACAA CTGGACGATT TGTGACTAAG	420
GATAAGGAGC TAATCGCCCA GTCACGCAA CAATTATCAG AAGAAGAATT GGAACACTTC	480

GTTCCTCCA TGACCCATTT TGGCTATGAA AAAGAAGAAC TACCAGGCGT AGTCAGTGAT	540
TATATTAAAG GAGTTTAAGC CTATGTCATT ACTAGTATTT GAAAATGTAT CCAAATCATA	600
TGGAGCAACA CCAGCCCTTG AAAATGTTTC TCTTGACATT CCAGCTGGAA AAATTGTCGG	660
CCTTCTTGGG CCAAACGGCT CAGGAAAAAC AACCTGATT AACTAATTA ATGGCCTCTT	720
ACAACCAGAT CAAGGACGTG TCCTCATCAA CGACATGGAC CCAAGCCCAG CAACCAAGGC	780
CGTTGTAGCT TATTTGCCTG ATACGACCTA TCTCAATGAG CAAATGAAGG TCAAAGAAGC	840
CCTAACCTAC TTCAAGACCT TCTATAAAGA TTGTCAGATC TTGAACGGCG CCATCATCTA	900
CTTGACAGACC TGGGCATTGA TGAAAATAGT CGTCTCAAGA AACTATCAAA AGGAAACAAA	960
GAAAAGGTTT AACTGATTTT GGTATGAGC CGTGATGCTC GTCTCTATGT TTTGGACGAA	1020
CCCATTGGTG GGGTGGATCC AGCAGCCCGT GCTTATATCC TCAATACCAT TATCAACAAC	1080
TACTCACCAA CTTCTACCGT TTTGATTCTT ACCCACTTGA TTTCTGATAT CGAGCCAATC	1140
TTGGATGAAA TTGTCTTCCT AAAAGACGGA AAAGTCGTCC GTCAAGGAAA TGTAGATGAT	1200
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ACAGTCTTTG GTGGCTTGAT GCTTACACTT GGGATTTCAA CCATTTTCTT GATTATTAAA	1500
CGCTTCAAAG GTAGTGCTA CGACCGACAA GGCTATCTGA CTTTGACCTT GCCAGTTTCT	1560
GAACACCATA TCATCACAGC CAAACTAATC GGTGCCTTTA TCTGGTCATT GATTAGCACC	1620
GCTGTATTGG CTCTAAGTGC TGTATTATT CTGGCTTTAA CAGCTCCACA ATGGATTCTT	1680
CTTTCTTATG TGATTACATT TGTAGAAACA CATCTCCCTC AGATCTTTCT TACAGGTATA	1740
TCCTTCCTAC TAAATACTAT TTCAGGAATC CTCTGCATCT ACCTGGCTAT TTCCATTGGA	1800
CAGCTTTTCA ATGAATACCG TACAGCACTC GCTGTTGCAG TCTACATTGG TATCCAAATC	1860
GTCATTGGAT TTATTGAACT TTTCTTCAAT CTTAGTTCTA ATTTCTATGT CAATTCCTG	1920
GTAGGACTCA ATGACCATTT CTATATGGGA GCAGGTATAG CCATTGTTGA AGAACTCATA	1980
TTCATAGCTA TCTTTTATCT CGGAACCTAC TACATCTTGA GAAATAAGGT TAATTTGCTT	2040
TAAATAATTT TTACCTAGAT ATGTAACATA CTCATAGAAC AAAAGAGACC AGGCAAAAAG	2100
TCTTTAAAAT TAGAAAACGC ATAGTATCAG GTGTTGAATA TGTAAGGCGC CCCAAAAGTT	2160
AGATTTTTTC TGTCTAACTT TTGGGGGCAG TTCATAAGAA CCTTGGAAT ATGCGTTTTT	2220

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TTCACTTCAC TATACAATTG AGTTTTCAAG CAACCTGTTT ACATAATGTG TACATAATTA	2400
GGTTCGTGAT TCCACCCCTT TCACCTTTAA AAACCTCGCT TTCGCAAGGC TCTTCTATTT	2460
ATAAGATAAG GCACGTTTAA AGGTTTTCCA AATCCCTAAA TCATCCGTTT GAAGAACGAG	2520
ACTAGCATAC ATGCGTCCGA TAAATCCTGT TGCTACCACC GCAAAAATCA CTGTAATAGC	2580
AAGTGAAATC CATGCTTCTG CTCCCCCGC ATAGTCATTA ATCGTTCGAA ACGGCATAAA	2640
GAAGGTCGAA ATAAAGGGAA TATAAGAACC AATCTTCAAG AGGAGATTGT CACCAGCTGC	2700
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CATGAAAAGA CTGATCAAAA TAAAGAGCAA GGTATTCAGT GAGATAGCAT CTCCCAAGTG	2880
ATCCAAAATA CCAGACTGAG CCAAGAATGG CAAATCTTTA AAGAGCAAAA CGGCAGCCAG	2940
ACCACCTACA ACATAGATCC CAATATGCGT TAAATCACT AGAAACAGAG CCATCATCCG	3000
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TTTTTCACTG GCAACTTCCT GAGCTGTTAC ACCCGCATAG GTAATCAGAA TCATATAAAG	3120
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ACTCCTGATT CTAGTTTAAA GATTTTCATG ATAGTTGGCG CTTGTTGGTC AAATGTTGCG	3720
ATATATTGAC CTTGAGTCAA GATTGAGAAG AGTTCCCTTC CAGCGCTCTC ATCCTCCAAA	3780
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CAAAGTTCCT CAACATTGGT CATGACATGG TCAGAAAAGA TAATGGTTGT CCGCGCTCTT	4020

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TTTCCTGAAA AATGACTTGT TTGAGCAATT CTGTATTAAC TGGGTCCAAT CCACTAAAAG	4080
GCTCATCCAA GATAATCAGG TCTGGTTCAT GAATCAGAGT AATAATGAGC TGAATCTTCT	4140
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TCAAACTGAT TTCTAACAAT GTTTTAGAAG TAGATGTATA CTATTCTAGT TTCAATCTGC	5220
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TATAGTAGAA ATATACTATC TATGAGGAGT TTACATGTCA CAGGATAAAC AAATGAAAGC	5880
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GTCGTCGTGA TAAAGCCATA AGTTTTGAG TTTTGTCAA TATCAATCGG CCCAAATGAA	7500
CCAACTGCAA GACCAGCAAG GTTATCGAAT TTTGAGAAGA ACTCAATGGT TTTATCGATT	7560

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GTTCGATTG GAGTTGTTGT TGGAAATTGT GTTTTTTCTA CAACGTTAAA GTTTTCATCA	7620
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TTTTTTAGAT TTCTCTCTGT AAATCTTACT ATCTAATAAA AACGAACAAA CATGTCATTT	7800
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CACCCCGAAG ATAGCAGGCT CTGTATATCC TAGGAAGGCA GAAAGAGGAG CCGGGAAAGC	8640
AAGTGTTTTC AGTTTTGGAT TTTTGTTTT AACACCAACC GCAACAGTAG CAGCACCTTG	8700
AGCTGTCATA GCAGCTGTGA TGATAGCGTT GAATGGGTTA GCATGGTCAG CAGCAAGTAA	8760
TTGCACTTCA AGCAAGTTGA AGATGTGGTG CACACCTGAC ACGACGATCA ATTGGTGAAC	8820
CCCACCAATC AAGAAACCAC CAAGACCAAA TGGCATGCTA AGAATCGCTT TTGTAGCAAT	8880
AAGGATGTAG TTTTCAACAA CGTGGAACAC TGGTCCAATG ACAAAGAGTC CAAGGATAGA	8940
CATGACCAAA AGTGTCACGA ATGGTGTTAC CAAGAGGTCA ATGACATCTG GAACAACCTG	9000
CGGACAGCTT TTTCAAATTT AGCTCCGACA ACCCCGATGA TGAAGGCTGG AAGAACGGAA	9060
CCTTGCAAAAC CAACAACAGG GATGAAACCA AAGAAGTTCA TCGCTGTTAC TTCACCACCT	9120
TGAGCAACTG CCCAAGCGTT TGAAGTGAG CCAGAGACAA GCATCATACC AAGAACGATA	9180
CCAACGGCAG GATTTCCACC AAATACACGG AAGGTTGACC ACACAACCAA ACCTGGCAAG	9240
ATGATGAAGG CTGTATCTGT CAAGATTTGT GTGTAAGTTG CAAAGTCACC TGAAGTGCC	9300

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ATTTCAAGAG CGTTGAAAAG ACCACGCACA CCCATGAAGA GACCTGTCGC TACGATAACT	9360
GGGATGATTG GAACGAAAAC ATCACCACAAA GTACGGATAG CACGTTGGAA CCAGTTCCTT	9420
TGTTTAGCAA CTCTGCTTT CATGTCATCC TTAGATGATG TTGGTAATCC AAGTACAACA	9480
ACTTCATCGT ACATTTTGTT AACTGTACCT GTACCAAAGA TAATTTGGTA TTGCCCTGAG	9540
TTAAAGAAAG CACCTTGAAC TTTTCCAAG TTCTCAATCA CTCTTTTATT GATTTTCTCT	9600
TCATCTTTGA CCATGACACG TAGACGAGTC GCACAGTGGG CAACACTATT GACATTTTCA	9660
CGTCCGCCCA AGGCATCGAT GACTTTTCTT GCAATTCCTT GATTGTTTAT TTGCAAAAAT	9720
CTCCTTATAT AACATTTTGT TCTTGTGTTGA AAGCGATTTT ATTCGCCGG	9769

(2) INFORMATION FOR SEQ ID NO: 31:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 3149 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 31:

CGCTTGAGTG CTAATTCATA GTTCTATTGT ATCACTTGGT CAGAAATAAT CAAGAAAAAA	60
GTCTGACTTT CTCAAGATAA AAAGCCTGAG ACCAACTCAG ACTTTTAAAT TCTTAAATG	120
GCAATTCTTC CTCTCCAAG ACCAAATCTG CCAAATCTTG GCCTGCATTA TTTTCACGCA	180
TAGCACGTTG GGCACGACTT TCCAAGAGTT GGAATCCTGT GACAAGTACT TCGGTCACGT	240
AGTTCAATTG GCCATTTTTC TCAAAGCGAC GGGTACGCAA TTCTCCATCA ACGGAAATGA	300
GACTACCTTT GGTTCGTAC TTGCCAAAGT TTCTGCTAGT CTGCCCCATA GGACCATATT	360
GACAAATCA GCTTCACGTT CACCGTTTGT GTCTTTGTAA CGACGGTTCA CAGCGATAGT	420
TGCTCGCGCT ACCGACTTGT CATTGTGGT TTTGTGCAAT TCTGGTGTAG ACGTTAAACG	480
TCCAATCAAG ATAACCTTAT TATACATATT TTCTTCTCC TACTTATCTA TTCGTAGGAA	540
ATCAAAAAAA GTTACAGAAA TTTGTAACCT TTCCAGAAAA TTTTATTATT TTTATGAACC	600
ATGAAACCTG TCGCCTGTTG ATTGGCCATA ATGGTCATAT CTGTAATCTG AACACGACGA	660
GGTTGACTAG TCACATAGAC TACTGTATCT GCAATATCCT GAGCTTGCAA AGCTTCTATT	720
CCTTGGTAAA CGGACGCAGC TCGTTCTTTA TCACCATGAA AACGCACTGT AGAAAAATCT	780
GTTCGACAA TTCCAGGCTG AATGGTCGTC ACCTTGATAT CCGTTGCGAT GGTATCAATT	840
CGCAGTCCAT CTGAAAAGGT CTTAACTGCC GCCTTGGTGG CTGAGTAAAC AGCTGCACCA	900
GCATAGGCAT AAATTCCTGC GGTGACCCC ATATTGATAA TATGACCTTG ATTGGCTTTT	960

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ACCATTGCTG GCAAGAAACA GCGAGTGA CTTCATCAAAC CTTTGACATT GGTATCCAAC	1020
ATGGTCAGCA TATCCAATC TTCATAGTCT TGATAGGGAG CTAAGCCAAG AGCCAGTCCT	1080
GCGTTATTGA CCAGGATGTC AATCTGACCT ATCGTTTCTA AAATATCAGA GCAGACAGTC	1140
TTTACCATTG TCATATCCGT GACATCTAGG AGAAAAGTCC AAATGTTTG ATTTGGAAAA	1200
GTTTCTGCAA ACTCCGCCTT AAGAGCTTCT AGTCTGTCTA TCCGTCGTCC TGTTAGAACG	1260
ACATCCTCAC CCTGCTCCAG ATAAGCACGC GCAATCGCTT CACCGATTCC TGATGTCGCT	1320
CCTGTAATCA CAACATTTT TGCCATCTTA TTTCTTCTA GCTGGTCTAT CAGATATTAA	1380
CAACTTCTTA GGCAGTCCAG TGTTCGCTG GGTGGAACGG TGTTCGACA ACTTGGTCTT	1440
CTGATAATTC AAGCACCCCA CGTTTTGTG GAGCATTTGG CAGATGCAAT TCACGAGGAC	1500
TGCACATCAT ACCAAAATC TTTTCAACC GAAGTTCACC TGGGAAAATG AGATTCCCTT	1560
TTGGCATCAT AGCTCCAGGA AGCGCGACAA TGGTTTTCAA CCCCACACGC GCATTGGGAG	1620
CTCCTGCAAC GATTTGTACA GTCTTATCAC TTGCGACTGC AACTTGGCAG ATGTTGAGGT	1680
GGTCACTATC TGGATGGGCT ACCATCTCAA CAATTTCAAC TACAACAAA TTAGGTTCTT	1740
TATCATTAAC AATTTCTTCT GTAAAACCTT CCGCTGCAA CTCTTGGTTC AAACGAGCGA	1800
CTTGCTCATC TGTCAAAAAG ACTTGACCGC GCTCTGCAAT TTCAAATAAA CTTGAAACTT	1860
CGAAAAATTT CCAAGCCACT GTTTCCCAT TATCTTTGAG AAAAACACGG GCTACCTTGC	1920
CTTTGCGCTC CACATCCAGT TTGGCATCTC CGCTATTTTT CACGATGACC ATAAGGACAT	1980
CACCGACATG TTCTTTATTA TATGTAAAA TCATTGTTTC CTTTTCTCC TATTTAGTC	2040
CTGCTAAAAA GTCATTGATT TGTGCTTGC TTTTACGGTC GCGATTGACA AAACGACCGA	2100
TTTCTTGTG CTTTTCTAGA ACAACAAGGC TAGGAATTCC GTAAACATCC CAGAGTTTG	2160
CCAAATCCAT ATACTGATCT CGGTCCATTC GAATAAAGGT GAACTCTGGA TTGGTCTCCT	2220
CAATCTCTGG TAAGGCAGGA TAAATATAAC GACAATCGCT ACACCAGTCT GCCACAAAAA	2280
TGAAGACCTT CTGCCCCGCT TTTTCCACTA AAGATGCTAA TTCTTCTAAA CTTGCTGGCT	2340
GTATCATAAG ACTTCCTCCT CATAGACTAG GTCTTCATTT TCATAGACAA AGGTATAATG	2400
ACGGCCATCC TCAAAAATGA CGCCACCAAC CAAGCTCTCC AGACTGCTTT CGTAAACTTG	2460
AACATAAAGG GTCGCAATTT CCCCATGTC GGAAAAATGG TCTCGCACA TCTCTGTCAA	2520
CTCTTCTGA GTCTTCATGA GCTTACGGTC ATCTGCAACT TTTTTCGTAG CAAGAGCAAG	2580
GCTTCCGATA CCTAGCAGAG CCAAGCCTGC CATCCACATT TTTTTCGTAG TCATACCATT	2640
CATTTTAACA CAAAAAAGGC TTCAGGACAA ATGAGGAAGC AGCAGAAAAG CAAGTAAAAA	2700

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GCCTCTTCCT TTAAGGAAAA GGACTTCTTA TACTCAATGA AAATCAAAGA CCAAAGTAGG	2760
AAGCTAGCCG CAGGCTGCTC AAAGCACTGC TTTGAGGTTG TAGATAGAAC TGACGAgTca	2820
CTCAAAACAC TGTTTTGAGG TTGTGGATGA AGCTGACGTG GTTTGAAGAG ATTTTCGAAG	2880
AGTATTATTC TTATTGCCAG GCACCTAAGT TGCCAACGTA GTAACATCA GGTGTGTAGG	2940
TATTGCGAGC ATCTTACCTG ATGAAGCCAG ATAATACTAC TTGCCATTGT CTTTGACCCA	3000
ATCATTCCGA ATCATGGAAC CAGAAGAACT TACATAATAC CATCTCCCT TGTCATAAAC	3060
CCAAGTACTG ACTTTCATGG TTCCTGAGCA ATTAAAGGCA AAAAACTGT CCAATAACAT	3120
TCGTTTTTTA AAAGCATTG ACACTACAT	3149

(2) INFORMATION FOR SEQ ID NO: 32:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 10240 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 32:

CCAAAAATTC AACCTTTAAG GGGAGTCCAG AGAGACTCAC AAGGTGTCAG ATAAAAGAAT	60
GGTGCAATTT TCTAGAGGAG ACTTTTGTAG TGTGCTCTCT TGTGTTGTAC GATTTTAACT	120
GAGGCCTTGC ACTAGCAAGG TCTTTTCTTT ATCTGGTCCC CTAAAAATTT AAGGAGGAAA	180
AGTTATGAAT CCCACATGTA AGAAGCGTTT GGGTGTCAAT CGGTTGGAAA CCATGAAGGT	240
GGTGCACAA GAGGAAATCG CGCCACAATC TTTGAATTAG TCCTAGAAGG AGAAATGGTT	300
GAAGCCATGC GAGCAGCCCA ATTTCTTCAT CTGCGTGTAC CGSACGATGC CCATCTCTTA	360
CGTCGTCCTA TTTCAATTTT GTCTATTGAC AAGGCAAACA AGCAGTGTCA CCTCATTTAT	420
CGGATTGACG GAGCTGGGAC TGCAATTTTT TCAACCTTAA GTCAGGGAGA CACTCTTGAT	480
GTGATGGGGC CTCAGGGAAA TGGTTTGTAC TTGTCTGACC TTGATGAGCA GAATCAGGT	540
CTCCTTGTTG GTGGTGGGAT TGGTGTCCA CCCTTGCTTG AGGTGGCCAA GGAATTGCAT	600
GAACGTGGAG TGAAAGTAGT GACAGTCCTC GGTTTGTCTA ATAAGGATGC TGTATTTTG	660
AAAACGGAAT TGGCTCAGTA TGGTCAGGTC TTTGTAACGA CAGATGATGG TTCTTATGGC	720
ATCAAGGGAA ATGTTTCCGT TGTTATCAAT GATTAGACA GTCAGTTTGA TGCTGTTTAC	780
TCGTGTGGGG CTCCAGGAAT GATGAAGTAT ATCAATCAAA CCTTTGATGA TCACCCAAGA	840
GCCTATTTAT CTCTGGAATC TCGTATGGCT TGTGGGATGG GAGCTTGCTA TGCTGTGTT	900
CTAAAAGTAC CAGAAAACGA GACGGTCAGC CAACGCGTCT GTGAAGATGG TCCTGTTTTC	960

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CGCACAGGAA CAGTTGTATT ATAAGGAGAA AATTATGACT ACAAATCGAT TACAAGTTTC	1020
TCTACCTGGT TTGGATTGA AAAATCCGAT TATTCCAGCA TCAGGCTGTT TTGGCTTTGG	1080
ACAAGAGTAT GCCAAGTACT ATGATTTAGA CCTTTTAGGT TCTATTATGA TCAAGGCGAC	1140
AACCCTTGAA CCACGTTTTG GGAATCCAAC TCCAAGAGTG GCAGACACGC CTGCTGGTAT	1200
GCTCAATGCA ATTGGCTTGC AAAATCCTGG TTTAGAGGTT GTTTTGGCTG AAAAGCTACC	1260
TTGGCTGGAA AGAGAATATC CAAATCTTCC TATTATTGCC AATGTAGCTG GTTTTCAAA	1320
ACAAGAGTAT GCAGCTGTTT CTCATGGGAT TTCCAAGGCA ACTAATGTAA AAGCTATCGA	1380
GCTCAATATT TCTTGTCCTCA ATGTTGACCA CTGTAATCAT GGACTTTTGA TTGGTCAAGA	1440
TCCAGATTTG GCTTATGATG TGGTGAAAGC AGCTGTGGAA GCCTCAGAAG TGCCAGTTTA	1500
TGTCAAATTA ACCCCGAGTG TGACCGATAT CGTTACTGTC GCAAAAGCTG CAGAAGATGC	1560
GGGAGCAAGT GGCTTGACCA TGATCAATAC TCTGCTTGGG ATGCCCTTTG ACCTCAAAAC	1620
TAGAAAACCA ATCTTGGCCA ATGGAACAGG TGGAATGTCT GGTCCAGCAG TCTTCCAGT	1680
AGCCCTCAAA CTCATCCGCC AAGTTGCCCA AACAACAGAC CTGCCATCA TTGGAATGGG	1740
AGGAGTGGAT TCGGCTGAAG CTGCCCTAGA AATGTATCTG GCTGGGGCAT CTGCTATCGG	1800
AGTTGGAACA GCTAACTTTA CCAATCCTTA TGCCTGCCCT GACATCATCG AAAATTACC	1860
AAAAGTCATG GATAAATACG GTATTAGCAG TCTGGAAGAA CTCCGTCAGG AAGTAAAGA	1920
GTCTCTGAGG TAAACTGCAA TCAATCTGTT CTTGATTTTT TATTAGTTTG TAATATGAAT	1980
TTAGGAGAAT TTTGGTACAA TAAAATAAAT AAGAACAGAG GAAGAAGCTT AATGAACAAA	2040
GTAAGATTTA TTTTTTTAGC TCTGCTATTT TTCTTAGCTA GTCCAGAGGG TGCAATGGCT	2100
AGTGATGGTA CTTGGCAAGG AAAACAGTAT CTGAAAGAAG ATGGCAGTCA AGCAGCAAAT	2160
GAGTGGGTTT TTGATACTCA TTATCAATCT TGGTTCTATA TAAAAGCAGA TGCTAACTAT	2220
GCTGAAAATG AATGGCTAAA GCAAGGTGAC GACTATTTTT ACCTCAAATC TGGTGGCTAT	2280
ATGGCCAAAT CAGAATGGGT AGAAGACAAG GGAGCCTTTT ATTATCTTGA CCAAGATGGA	2340
AAGATGAAAA GAAATGCTTG GGTAGGAACT TCCTATGTTG GTGCAACAGG TGCCAAAGTA	2400
ATAGAAGACT GGGTCTATGA TTCTCAATAC GATGCTTGGT TTTATATCAA AGCAGATGGA	2460
CAGCACGCAG AGAAAGAATG GCTCCAAATT AAAGGGAAGG ACTATTATTT CAAATCCGGT	2520
GTTTATCTAC TGACAAGTCA GTGGATTAAT CAAGCTTATG TGAATGCTAG TGGTGCCAAA	2580
GTACAGCAAG GTTGGCTTTT TGACAAACAA TACCAATCTT GGTTTTACAT CAAAGAAAAT	2640
GGAAACTATG CTGATAAAGA ATGGATTTTC GAGAATGGTC ACTATTATTA TCTAAATCC	2700

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GGTGGyTACA TGGCAGCCAA TGAATGGATT TGGGATAAGG AATCTTGGTT TTATCTCAAA	2760
TyTGATGGGA AAATrGCTGA AAAAGAATGG GTCTACGATT CTCATAGTCA AGCTTGGTAC	2820
TACTTCAAAT CCGGTGGTTA CATGACAGCC AATGAATGGA TTTGGGATAA GGAATCTTGG	2880
TTTTACCTCA AATCTGATGG GAAAATAGCT GAAAAAGAAT GGGTCTACGA TTCTCATAGT	2940
CAAGCTTGGT ACTACTTCAA ATCTGGTGGC TACATGGCGA AAAATGAGAC AGTAGATGGT	3000
TATCAGCTTG GAAGCGATGG TAAATGGCTT GGAGGAAAAA CTACAAATGA AAATGCTGCT	3060
TACTATCAAG TAGTGCCTGT TACAGCCAAT GTTTATGATT CAGATGGTGA AAAGCTTTCC	3120
TATATATCGC AAGCTAGTGT CGTATGGCTA GATAAGGATA GAAAAAGTGA TGACAAGCGC	3180
TTGGCTATTA CTATTTCTGG TTTGTCAGGC TATATGAAAA CAGAAGATTT ACAAGCGCTA	3240
GATGCTAGTA AGGACTTTAT CCCTTATTAT GAGAGTGATG GCCACCGTTT TTATCACTAT	3300
GTGGCTCAGA ATGCTAGTAT CCCAGTAGCT TCTCATCTTT CTGATATGGA AGTAGGCAAG	3360
AAATATTATT CGGCAGATGG CCTGCATTTT GATGGTTTTA AGCTTGAGAA TCCCTTCCTT	3420
TTCAAAGATT TAACAGAGGC TACAAACTAC AGTGCTGAAG AATTGGATAA GGTATTTAGT	3480
TTGCTAAACA TTAACAATAG CCTTTTGGAG AACAAGGGCG CTACTTTTAA GGAAGCCGAA	3540
GAACATTACC ATATCAATGC TCTTTATCTC CTTGCCATA GTGCCCTAGA AAGTAACTGG	3600
GGAAGAAGTA AAATTGCCAA AGATAAGAAT AATTCTTTG GCATTACAGC CTATGATACG	3660
ACCCCTTACC TTTCTGCTAA GACATTTGAT GATGTGGATA AGGGAATTTT AGGTGCAACC	3720
AAGTGGATTA AGGAAAATTA TATCGATAGG GGAAGAACTT TCCTTGGAAG CAAGGCTTCT	3780
GGTATGAATG TGGAATATGC TTCAGACCCT TATTGGGGCG AAAAAATTGC TACTGTGATG	3840
ATGAAAATCA ATGAGAAGCT AGGTGGCAAA GATTAGTACT ATAAGTGAAT ATGATTTGAG	3900
TGAATAGTAA GTTAAAAATC CTGATTTCAA GTAAAATCAG GATTTTTTCA TGGATGCAAT	3960
TTTTTTGGAG TCTGGTGTGA CGCGGAGGGT CTTTTGTCTT GTGTAAGTGA CAAAGCCGGG	4020
TTTTCCACCA GTTGGTTTAT TGAGTTTTTT GACTTCAATC ATATCTACCT GCACCAGATT	4080
CGACAGGCGC CCTTGAGAGA AGTAGGCAGC TAACTCTGCT GCGTCTGTCT TGAATGCAATC	4140
AGATGGGTCA AGATTTCTTG AGATGACAAC ATGGCTTCCA GGAATGTCTT TAGCATGGAA	4200
CCAAAGTTCC TCCTTGCGGG CCATTTTAAA GGTCAATTCC TCATTTTGAA GATTGTTTCG	4260
TCCGACATAG ATGATGGTTT TGCCATCGCT TGCTAGATAT TGTTCTAGTT TTTTCCGTTT	4320
CTGGATTTTC TCCCGTTGTC TTCTGCGGAT AAAACCTGTT TGAATCAATT CTTACCGGAT	4380
TTCAGCGATT TCTTCCAGTC CAGCTTGGTT GAGGACGGTT TCTACACTTT CCAGATAGAC	4440
AATAGTGGCT TTGGTTTCTT CAATCAAATC AGTCAAGTAT TTGACAGCTT CTTTGAGTTT	4500

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CTGATACCGT TTAAATAGC GTTGGGCATT CTGGTTGGGA GTCAGAGCCT TATCAAGCGC	4560
AATCATGATA GGTGGTTGG TATAGTAGTT GTCTAGGATA ACCTGGTCTT GGTGTTAGG	4620
CACTTGGTGG AGGAAGGTTG TCAGCAATTC TCCTTTTGA CGAAATTCCT CAGCGTTGTC	4680
TGTCGCCAGT AACTCTTTT CCTGTTTTT SAGTTTGTGT CGGTTTTCT GAAGTTCATT	4740
TTCAACACGA CGAATCAGTT CACTGGCCTG CTGTTTGACG CGGTCGCGCT CAGCCTTATC	4800
CTTATAGTAG GTGTCCAACA AATCAGAAAG ATTTGCAAAA GGCTCTCCCA CCTGATTTGC	4860
AAAAGGAACT GGACTGAAGG AAGTCTCAGT CAAGCATGGC TTGGTTTCTT GATTGAAAAA	4920
ATTTGCGAAA GCGGAAAGTT TTCTACTAAC CAGTATCCTT TCCAATTCAT TTGCCGTATC	4980
GCGTCCCGA CCTTGAAAGA GGCTTTGAAG ATTTTTTGCT GTTACTTCTT GGGTTTGACG	5040
GATTTCAAAG AGCTTTTCAT CCTTGATAGT AAAAGGATTG AGAGATTTTG TACTTGGCGG	5100
AGCGATATAG GTCGATCCTG GAAGTAAGGT GCGGTAGCTA TTTTGTGAAA AGCCGACGTG	5160
TTTGATAACT TCGAGGATTT TATGACTGCT TTTATCGACC AGTAGAATAT TACTGTGTTT	5220
CCCCATAATT TCGATAATCA AGGTAGCCTG GATATGGTCT CCAATCTCGT TTTTATTGGA	5280
AACTGTAATT TCCACAATAC GGTCATTTTC CACTTGCTCA ATCGACTCAA TCAGGGCCCC	5340
CTGCAAATAC TTTCTCAAAA CCATGATAAA GGTAGAAGGT TGAGCTGGAT TTTCAAAAGT	5400
CGTTTGGGTC AGCTGAATGC GTCCAAAAAC TCGATGGGCA GAAAGGAGCA GGCGATGGCT	5460
TTGGCGATTG CTGCGGATTT GCAAGACCAA CTCTTGTTCA AAAGGCTGAT TGATTTTCTG	5520
GATGCGACCA TTTACTAATT CGCTTCGCAA TTCCTCAACT ATGTGGTGTA AAAAAATCC	5580
GTCAAATGAC ATCGTTCTCT CTTGTGATT GTATTCCATA GTATTATATC AAAAAGGTAG	5640
AATAAAATCA TGGAAATGTG GTATAATAAA GCCAAGTAAA GAGAAACGAG AAGCACATGT	5700
ATATTGAAAT GGTAGATGAA ACTGGTCAAG TTTCAAAAGA AATGTTGCAA CAAACCCAAG	5760
AAATTTTGA ATTTGCAGCC CAAAAATTAG GAAAAGAAGA CAAGGAGATG GCAGTCACTT	5820
TTGTGACCAA TGAGCGTAGT CATGAACTTA ATCTGGAGTA CCGTAACACC GACCGTCCGA	5880
CAGATGTCAT CAGCCTTGAG TATAAACCGA AATTGGAAAT TGCCTTTGAC GAAGAGGATT	5940
TGCTTGAAAA TTCAGAATTG GCAGAGATGA TGTCTGAGTT TGATGCCTAT ATTGGGGAAT	6000
TGTTTCATCTC TATCGATAAG GCTCATGAGC AGGCCGAAGA ATATGGTCAC AGCTTTGAGC	6060
GTGAGATGGG CTTCTTGCCA GTACACGGCT TTTTACATAT TAACGGCTAT GATCACTACA	6120
CTCCGGAAGA AGAAGCGGAG ATGTTCCGTT TACAAGAAGA AATTTTGACA GCCTATGGAC	6180
TCACAAGACA ATAAACGAAA ATGGAAAAAT CGTGACTTGA TATCCAGTTT AGAATTTGCT	6240



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TTGACAGGTA TTTTACTGCG TATCAAGGAA GAACGCAATA TGGAAACA CGCAGTGACG	5300
GCTCTAGTGG TCATCCTTGC AGGTTTTGTT TTTCAGGTGT CACGAATCGA ATGGCTCTTT	6360
CTCCTATTGA GTATTTCTTT GGTAGTAGCC TTGAGATTA TCAACTCTGC TATTGAAAAT	6420
GTGGTGGATT TGGCCAGTCA CTATCACTTT TCCATGCTGG CTAAAAATGC CAAGGATATG	6480
GCGGCCGGCG CGGTATTAGT GGTTCCTCTT TTCGCAGCCT TAACAGGCGC ATTGATTTTT	6540
CTCCCACGAA TCTGGGATTT ATTATTTTAA ACAGTAAGAG GAAATTATGA CTTTAAATC	6600
AGGCTTTGTA GCCATTTTAG GACGTCCCAA TGTGGGAAG TCAACCTTTT TAAATCACGT	6660
TATGGGGCAA AAGATTGCCA TCATGAGTGA CAAGGCGCAG ACAACGCGCA ATAAATCAT	6720
GGGAATTTAC ACGACTGATA AGGAGCAAAT TGTCTTTATC GACACACCAG GGATTCACAA	6780
GCCTAAACA GCTCTCGGAG ATTTTCATGGT TGAGTCTGCC TACAGTACCC TTCGCGAAGT	6840
GGACACTGTT CTTTTCATGG TGCCTGCTGA TGAAGCGCGT GGTAAGGGGG ACGATATGAT	6900
TATCGAGCGT CTCAAGGCTG CCAAGGTTCC TGTGATTTTG GTGGTGAATA AAATCGATAA	6960
GGTCCATCCA GACCAGCTCT TGTCTCAGAT TGATGACTTC CGTAATCAAA TGGACTTTAA	7020
GGAAATTGTT CCAATCTCAG CCTTCAGGG AAATAACGTG TCTCGTCTAG TGGATATTTT	7080
GAGTGAATAT CTGGATGAAG GTTCCAATA TTTCCCGTCT GATCAAATCA CAGACCATCC	7140
AGAACGTTTC TTGGTTTCAG AAATGGTTCC CGAGAAAGTC TTGCACCTAA CTCGTGAAGA	7200
GATTCGCGAT TCTGTAGCAG TAGTTGTTGA CTCTATGAAA CGAGACGAAG AGACAGACAA	7260
GGTTCACATC CGTGCAACCA TCATGGTCTA GCGCGATAGC CAAAAAGGGA TTATCATCGG	7320
TAAAGGTGGC GCTATGCTTA AGAAAAATCGG TAGCATGGCC CGTCGTGATA TCGAACTCAT	7380
GCTAGGAGAC AAGGTCTTCC TAGAAACCTG GGTCAAGGTC AAGAAAAACT GCGCGGATAA	7440
AAAGCTAGAT TTGGCTGACT TTGGCTATAA TGAAAGAGAA TACTAAGTAG AGGTAGGCTC	7500
ATGCCTGCTT CTTGTTTTTA CAGAAGGAGG ACTTATGCCT GAATTACCTG AGGTTGAAAC	7560
CGTTTGTCGT GGCTTAGAAA AATTGATTAT AGGAAAGAAG ATTTCGAGTA TAGAAATTCG	7620
CTACCCCAAG ATGATTAAGA CGGATTTGGA AGAGTTTCAA AGGGAATTGC CTAGTCAGAT	7680
TATCGAGTCA ATGGGACGTC GTGGAAAATA TTTGCTTTTT TATCTGACAG ACAAGGTCTT	7740
GATTTCCCAT TTGCGGATGG AGGGCAAGTA TTTTACTAT CCAGACCAAG GACCTGAACG	7800
CAAGCATGCC CATGTTTTCT TTCATTTTGA AGATGGTGGC ACGCTTGTTT ATGAGGATGT	7860
TCGCAAGTTT GGAACCATGG AACTCTTGGT GCCTGACCTT TTAGACGTCT ACTTTATTTT	7920
TAAAAAATTA GGTCTGAAC CAAGCGAACA AGACTTTGAT TTACAGGTCT TCAATCTGC	7980
CCTTGCCAAG TCCAAAAAGC CTATCAAAATC CCATCTCCTA GACCAGACCT TGGTAGCTGG	8040

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ACTTGGCAAT ATCTATGTGG ATGAGGTTCT CTGGCGAGCT CAGGTTTCATC CAGCTAGACC	9100
TTCCCAGACT TTGACAGCAG AAGAAGCGAC TGCCATTCAT GACCAGACCA TTGCTGTTTT	8160
GGGCCAGGCT GTTGAAAAAG GTGGCTCCAC CATTCCGACT TATACCAATG CCTTTGGGGA	8220
AGATGGAAGC ATGCAGGACT TTCATCAGGT CTATGATAAG ACTGGTCAAG AATGTGTACG	8280
CTGTGGTACC ATCATTGAGA AAATTCAACT AGGCGGACGT GGAACCCACT TTTGTCCAAA	8340
CTGTCAAAGG AGGGACTGAT GGGAAAAATC ATCGGAATCA CTGGGGGAAT TGCCTCTGGT	8400
AAGTCAACTG TGACAAATTT TCTAAGACAG CAAGGCTTTC AAGTAGTGA TGCCGACGCA	8460
GTCGTCCACC AACTACAGAA ACCTGGTGGT CGTCTGTTTG AGGCTCTAGT ACAGCACTTT	8520
GGGCAAGAAA TCATTCTTGA AAACGGAGAA CTCAATCGCC CTCTCCTAGC TAGTCTCATC	8580
TTTTCAAATC CTGATGAACG AGAATGGTCT AAGCAAATTC AAGGGGAGAT TATCCGTGAG	8640
GAAGTGGCTA CTTTGAGAGA ACAGTTGGCT CAGACAGAAG AGATTTTCTT CATGGATATT	8700
CCCCTACTTT TTGAGCAGGA CTACAGCGAT TGGTTTGCTG AGACTTGGTT GGTCTATGTG	8760
GACCGAGATG CCCAAGTGA ACGCTTAATG AAAAGGGACC AGTTGTCCAA AGATGAAGCT	8820
GAGTCTCGTC TGGCAGCCCA GTGGCCTTTA GAAAAAAGA AAGATTTGGC CAGCCAGGTT	8880
CTTGATAATA ATGGCAATCA GAACCAGCTT CTTAATCAAG TGCATATCCT TCTTGAGGGA	8940
GGTAGGCAAG ATGACAGAGA TTAAGTGGAA GGATAATCTG CGCATTGCCT GGTGTGGTAA	9000
TTTTCTGACA GGAGCCAGTA TTTCTTTGGT TGTACCTTTT ATGCCCATCT TCGTGGAAAA	9060
TCTAGGTGTA GGGAGTCACC AAGTCGCTTT TTATGCAGGC TTAGCAATTT CTCTCTCTGC	9120
TATTTCCGCG GCGCTCTTTT CTCCTATTTG GGGTATTCTT GCTGACAAAT ACGGCCGAAA	9180
ACCCATGATG ATTCGGGCAG GTCTTGCTAT GACTATCACT ATGGGAGGCT TGGCCTTTGT	9240
CCCAAATATC TATTGGTTAA TCTTTCTTCG TTTACTAAAC GGTGTATTTG CAGGTTTTGT	9300
TCCTAATGCA ACGGCACTGA TAGCCAGTCA GGTTCCAAAG GAGAAATCAG GCTCTGCCTT	9360
AGGTACTTTG TCTACAGGCG TAGTTGCAGG TACTCTAACT GGTCCCTTTA TTGCTGGCTT	9420
TATCGCAGAA TTATTTGGCA TTCGTACAGT TTTCTTACTG GTTGGTAGTT TTCTATTTTT	9480
AGCTGCTATT TTGACTATTT GCTTTATCAA GGAAGATTTT CAACCAGTAG CCAAGGAAAA	9540
GGCTATTCCA ACAAAGGAAT TATTTACCTC GGTAAATAT CCCTATCTTT TGCTCAATCT	9600
CTTTTAAACC AGTTTGTGCA TCCAAATTTT AGCTCAATCG ATTGGCCCTA TTTTGGCTCT	9660
TTATGTACGC GACTTAGGGC AGACAGAGAA TCTTCTTTTT GTCTCTGGTT TGATTGTGTC	9720
CAGTATGGGC TTTTCCAGCA TGATGAGTGC AGGAGTCATG GGCAAGCTAG GTGACAAGGT	9780

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GGGCAATCAT CGTCTCTTGG TTGTCGCCCA GTTTTATTCA GTCATCATCT ATCTCCTCTG	9840
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CGGTGCCTTG ATTCCCGGGG TTAATGCCCT ACTCAGCAAA ATGACTCCCA AAGCCGGCAT	9960
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CTAACCGTA AAAATTCAAA AACCCATCCA GACagATTGA	10240

(2) INFORMATION FOR SEQ ID NO: 33:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 13206 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 33:

CGCTTTATCG TGGACGTGGT CAAGCCGAGA ATTTTCATCA GGAGATGAAG GAGGGATTTT	60
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GTATCGCCTA CAATCTCTAT CTTTTTCTCA AACATCTAGC TGGAGGTGAC TTCCAAACTT	180
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TAATAAAAAC ACCCCAAAAG TTAGATTTTT TCTGTCTAAC TTTTGGGGGG CAGTTCATTC	840
AACACCTGAT ACTATGCGTT TTTCTTATTT GAAATACTTT TTACTCAACC TCTTTATACT	900
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TTGCTTTATA TCTCGTCATA GCCTCTATTT TATCAAGAAA TTAGTCTGTA AACAAAGGACC	3000
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ACCCTGATAA TAGTCAAACA TGCTGGTAG GGCACCTGAA ATGGAAAAGG AGGTAATCAA	4380
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(2) INFORMATION FOR SEQ ID NO: 34:

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## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 13104 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 34:

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GCTGCTAACG ATGCTGTAAC ATTGATCAAA GAAACAATCA AACAAAAATT TGGTGAATAA      120
AAAATTTGTT CAAGGGGGGT GGAAATCAAA TCCCCCTTTG AATTTATCAA TAGAGACACA      180
AATAATTTAG CTTTCTTATA AAAAAGTAGT ATCCTATGAA AGGAGTTAAT ATGGAAAAGC      240
AACAACTAG TAAAGCAGCC CTGCTGTCTA TCATTCCTGG GTTAGGACAG ATTTACAATA      300
AACAAAAAGC CAAAGGTTTT ATCTTCCTTG GTGTAACCAT CGTATTTGTC CTTTACTTCC      360
TAGCACTTGC AACCCCTGAA TTGAGCAACC TCATCACTCT TGGTGACAAA CCAGGTCGTG      420
ATAATTCCTT CTTTATGCTG ATTCGTGGTG CCTTCCATCT AATCTTTGTA ATCGTTTATG      480
TACTCTTTTA TTTCTCAAAT ATCAAAGATG CACATACGAT TGCAAAACGC ATTAACAATG      540
GAATTCAGT TCCACGCACA CTCAAAGACA TGATCAAAGG GATTTATGAA AATGGCTTCC      600
CTTACCTCTT GATCATTCCA TCTTATGTTG CCATGACCTT CGCGATTATC TTCCCAGTTA      660
TCGTAACCTT GATGATCGCC TTTACCAACT ACGACTTCCA ACACTTGCCA CCAAACAAGT      720
TGTTGGACTG GGTGTTTTG ACCAACTTTA CAAACATTG GAGCTTGAGT ACCTTCCGTT      780
CTGCCTTTGG TTCTGTTCTT TCTTGGACTA TCATTTGGGC TTTGGCAGCT TCTACTTTAC      840
AAATCGTAAT TGGTATCTTC ACAGCTATCA TTGCCAACCA ACCATTTATC AAAGGAAAAC      900
GTATCTTTGG TGTTATTTTC CTTCTTCCTT GGGCTGTCCC AGCCTTCATC ACTATCTTGA      960
CATTCTCAAA CATGTTTAAC GATAGTGTCC GTGCTATCAA CACTCAAGTA TTGCCAATCT      1020
TGGCTAAATT CCTTCCTTTC CTTGATGGAG CTCTTATTCC TTGGAAAACA GACCCAAC/T      1080
GGACTAAGAT TGCCTTGATT ATGATGCAAG GTTGGCTCGG ATTCCCATAC ATCTACGTTT      1140
TGACCTTGGG TATCTTGCAA TCTATTCCTA ACGACCTTTA CGAAGCAGCT TATATTGACG      1200
GTGCCAACGC TTGGCAAAAA TTCCGCAACA TCACTTTCCC AATGATTTTG GCTGTTGCGG      1260
CACCTACTTT GATTAGCCAA TACACCTTCA ACTTTAACAA CTTCTCTATC ATGTACCTCT      1320
TCAATGGTGG AGGACCTGGT AGTGTGGGAG GTGGAGCTGG TTCAACCGAT ATCTTGATCT      1380
CATGGATCTA CCGTTTGACA ACAGGTACAT CTCCTCAATA CTCAATGGCG GCAGCTGTTA      1440
CCTTGATTAT CTCTATCATT GTCATCTCAA TCTCTATGAT CGCATTCAAG AACTACACG      1500

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CATTTGATAT GGAGGACGTC TAAGATGAAT AACTCAATTA AACTCAAACG TAGACTGACT	1560
CAAAGCCTTA CTTACCTTTA CCTGATTGGT CTATCAATTG TAATTATCTA TCCACTGTTG	1620
ATTACCATTA TGTCAGCCTT TAAAGCAGGT AACGTCTCAG CCTTTAAACT AGATACTAAT	1680
ATCGACCTCA ATTTTGATAA CTTTAAAGGC CTCTTCACTG AAACCTTGTA CGGTACTTGG	1740
TACCTCAACA CTTTGATTAT CGCCTTAATT ACCATGGCTG TTCAAACAAG TATCATCGTA	1800
CTTGCTGGTT ATGCTTACAG CCGTTACAAC TTCTTGGCTC GTAAACAAAG TTTGGTCTTC	1860
TTCTTGATCA TCCAAATGGT GCCAACTATG GCCGCTTTGA CAGCCTTCTT CGTTATGGCG	1920
CTTATGTTGA ACGCCCTTAA CCACAACCTG TCCTCATCT TCCTCTACGT TGGTGGTGGT	1980
ATCCCGATGA ATGCTTGGCT CATGAAAGGC TACTTCGATA CAGTGCCAAT GTCTTTAGAC	2040
GAATCTGCAA AACTAGACGG TGCAGGACAC TTCCGCCGCT TCTGGCAAAT TGTTCACCA	2100
CTTGTTCGCC CAATGGTTGC CGTACAAGCT CTCTGGGCTC TCATGGGACC TTTGGGGAC	2160
TACATCCTCT CTAGTTCTT GCTTCGTGAG AAAGAATACT TTAAGTTGTC CGTAGGTCTC	2220
CAAACCTTCG TTAACAATGC GAAAACTTG AAGATTGCCT ACTTCTCAGC AGGTGCTATC	2280
CTCATCGCCC TTCCAATCTG TATTCTCTTC TTCTTCCTAC AAAAGAACTT TGTTCAGGA	2340
CTTACAAGTG GTGGCGACAA GGGATAATTT ATCCCCGCA CCCTTTTCA TTTTATACTC	2400
TTGGAATAAT TCTTCAAACC ACGTCAGCTT TATCTCCAAC CTCAAAGTTG TGCTTTGAGC	2460
AACCTGTGGC TAGTTTGCAC TTTGATTTC ATTGATTATT AGCAATTGTC ACTGTAAATA	2520
ATATCCTTGT AGCAAGCAAT TTTTCTCCTA GACTTGAAAT AAAGCGCATT TCTCTATATA	2580
ATAATACTCA TATAGAAAAC ACCTTTTAGA AAGATACCTA TGCTTCCATA TCCATTTTCC	2640
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TTTCAACTTC TCTTACCAG TATCTTCCTT ATCAGCTTGT CTATGGTACC CATTGCTATC	2760
CAAAACAGCT CCCAGGAGAC CTATCCGCTA GAACTTTTA TCGATAATGT CTATGAACCT	2820
CTGACAGATA AGGTGTCCA GGATCTCTCT GAACATGCTA CAATTGTCTA TGGCACATTA	2880
ACTTATACTG GAACAGCTAG TCAAGCCCCT TCTGTTGTGA TTGGTCCAAG TCAAATCAAG	2940
GAATTACCTA AGGACTTGCA ACTGCATTTT GATACAAATG AGCTAGTCAT CAGCAAGGAA	3000
AGCAAGGAAC TGACCCGCAT CTCTTACCGA GCCATTCAGA CTGAGAGTTT CAAAAGCAAA	3060
GACAGCTTGA CCCAAGCAAT TTCTAAAGAC TGGTACCAAC AAAATCGTGT CTATATCAGC	3120
CTCTTCTTAG TTCTCGGTGC GAGCTTCCTC TTTGGTTTGA ATTTCTTTAT CGTCTCTCTT	3180
GGAGCTAGCT TTCTCCTTTA TATCACCAAA AGATCACGCC TCTTTTCATT TAATACCTTT	3240

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AAAGAGTGCT ACCATTTTAT CTGAACTGT TTAGGATTGC CGACTCTAT TACACTTATT	3300
TTGGGATTAT TTGGCCAAAA TATGACAACC CTGATTACTG TACAAAATAT TCTTTTGT	3360
CTGTATCTGG TCACTATCTT TTATAAAACA CATTTCCTGT ATCCAAATTA CCATAAATAG	3420
GAGATTTTAA TGCCCGTTAC GATTAAAGAC GTGGCCAAGG CTGCTGGTGT TTCGCCTTCA	3480
ACCGTAACCC GTGTTATTCA AAATAAATCA ACCATTAGCG ACGAAACAAA AAAACGTGTT	3540
CGCAAAGCTA TGAAGGAACT CAACTACCAC CCAAACCTCA ACGCTCGTAG CTTGGTAAGC	3600
AGCTATACTC AGGTTATCGG ATTAGTTCTT COTGATGACT CAGACGCCTT CTACCAGAAT	3660
CCTTTCTTTC CATCGGTCTT ACGTGGCCTC TCTCAAGTCG CATCTGAAAA CCACTATGCC	3720
ATTGAGATAG CAACAGGGAA AGATGAGAAG GAGCGTCTCA ACGCTATTTT ACAAATGGTC	3780
TACGGCAAGC GTGTAGATGG GCTAATTTTT CTCTATGCCC AAGAAGAAGA CCCTCTCGTA	3840
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ATCCCACTTG TCGACAACGA CAATGTTCAA GCTGGTTTTG ATGCGACTGA ATATTTTCATC	3960
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CGCATCTACT TTGCCGACGA GTTCTCGGAA GAAAAGGGCT ATAAATTTAG CAAGCGATTA	4140
TTCAAGCAGC ATCCACAAAT TGATGCTATC ATCACAACCG ATAGCCTCCT AGCTGAAGGT	4200
GTTTGTAACT ATATTGCCAA ACACCAGCTG GATGTCCCTG TTCTCAGCTT TGACTCGGTT	4260
AATCCCAAGC TCAACTTGGC AGCCTATGTC GATATCAATA GTTTAGAGCT TGGTCGTGTT	4320
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TTTCCAACCA AAGGTCAAAC CTGCTATCAG CATGATAGTT CCATTTACCA AGAAAGAAAT	5100
ACTACCGACA TTCTTACCCG TTTTCTTACG AATAGTCAGG CTGACGATA7 CCGTCCCACC	5160
ACTGGAGATA TTGTTTCGAA GAGCAAAACC AATCCCCAAA CCCATAACAA CCCCCC AAA	5220
AAGGGAATTG ATAATGGGAT CCTCTGTCAA GGTGCCCACA GGGACAAACT GGATAAAGAA	5280
GGAACTCATA GATACCGTGA TAAAGGTAAA GACGGTGAAC TTATGGCCAA TCTGATACCA	5340
AGCTAAGACC ATCAAAGGGA AGTTAATGGC GTAGAAGCTT AGCGAAATCG GAATATGAAA	5400
ACCAAACCAG TGATTACTCA AGGCAGAGAT AATCTGTGCC AGACCTGTTG CACCACTCGA	5460
ATACACATGC CCTGGTTGGA AAAAGAAAT7 AACTGCTACT GCTGATAAAA AACCATAGAC	5520
CAGAGAGGCC GAAATCTTCT CATCATACTT TTCTCGAGAG ATACTTTGTA AGACACGTAA	5580
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GGATA7TTTC TTCTCCAGCA AGCAACATGA CAAAACGGTC AAGCCCGATA GCCAAACCAC	5820
CGTGTGGTGG GAAACCATAG TCCATGGCTT CAAGAAGGAA ACCAAACTGG TCATTGGCTT	5880
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GAAGGCTACC ACCACCAAGC TCATAACCGT TCAAGACGAT ATCGTAAGCA ATGGCACGAA	6000
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GGTGGGCGCT CATGTAGCGG CCTTCTTCTT CAGACCATTC AAACATCGGC CAGTCAACCA	6120
CCCAAAGGAA GTTGAAC7TA TCATTATCAA TCAAGCCAAG CTCTTTAGCA ATACGTCCAC	6180
GAAGGGCACC CAGTGTGCA TTAGCCACTT CAAGCGTATC CGCCACAAAG AGAACCAAGT	6240
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CAACTGGTCC GTTTAATCTT CCATCAACCA CCTTGACCCA AGCAAGACCT TTGGCACCAT	6360
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AGTCCTCGTC ACGGAAACAT TTAACGATTT GGTAGTAACG GTCAAAACCA GCATTATCA	6780

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AGAGCTGTTT CGTGATTTGT GGACTTTGAG GAAGAGCGTA AAAATGCCCC TTATTAACAC	6840
GAGACGGCAC TAAATAATCA CGCGCCCCTT CAGGCGTTGA CTTAGAAAGG AATGGTGTCT	6900
CCACGTCGAT AAATCCAAC TCATCCAAGT AGTTGCGGAT AGAGTGGGTC ACCTTGGCAC	6960
GAAGTTTAAG ATTTCCAAC ATTTCTGGAC GACGAAGGTC AAGGTAACGG TAACGCAAAC	7020
GTGTATCGTC ATTTGCCTCA ATGCCATCCT TAATCTCAA TGGTGTGTG TTAGCTGTGT	7080
TAAGCACAAT AAGAGCTGTC ACGTTTAACT CAACCGCACC AGTTGGCAAC TTATCATTGG	7140
CTTGTCACGC GCAGCGACCT GACCAGTCAC CTCAATAACA AATTCGTAC GAAGGCTTTC	7200
AGCTGTGACC ATAACCTCTG CAGATACTTT TTCAGGGTTG ATAACCAACT GCATGATTCC	7260
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TCCTTTCAAG GTTATTTCTT GTCCGATGTG TTCCTCACGA ACACGACCAG CATACTACT	7380
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GACTCTAATA TAGCATGAGA ATCATCAAAA AGCCGACTAA ATTATTCAAA GCGTGAAGAG	8040
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TAGATACCAG AAGAAAAATC AGGGTTTCGTT TACTATTGTC CTGCTTAGGA AAGAGATAGC	8220
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AGAATGAGAA AAGTGGTTGA GACAAGGTCA AGTCTGTCCG TATTTGCTGA TTTACTGAAG	8340
GATCATCTGG CAAGAAGAAT TGAACGACCA GAGATAAGAA CCAAACCAAG ACAGGAAGCC	8400
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TTATTTGAAA TAACGTTTTA CCATAGGTAA CTGCATCACA TTGATATAAA CATGGATGGC	8700
TCCTACAAGC AAGAAAGCTA GTAACCTGAAT CTCTCCTGTC AAGAAAGAAA TGATAATAAG	8760
AAAAATATAT AAGGCTGGTA AGACATATTG GTGTAATTGG AATAAAATTC GAAAACCTCTG	8820
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TGGTGTAGCG AAAAAATCCA AATCAAACCTG ACGAACAATC GCAATGGTTT TAAAAAGAGA	8940
TTTTTGAGCG ACTAAGAATA CCACAAAGAG TAAGAAAGAA AGGAAAAATG TTTGAGGGTT	9000
TGTATGCAAT ATAATCACCT CACTTAATGA AATAAAAATA GCCAATGGAA TCGCTACACC	9060
TGTAATATTA AAAGCAATGG TTCCAAACCTC AAGATTCCGA TACATTTGCA CATAATAGGT	9120
TTCATTGAGA TCGTCATCCA TTCTCTCTTG ATACAAAGAA TGAAATTTTC TGCTTTCTCT	9180
TAAGAAATTG AAAGTCAAAA ACATACTAAT GAAACCTATC AGTAAACAAA TAGCTGATAT	9240
CCATGGCATC AAGGCTTTTA CATCTAAAAT AATTTCGTGG GATTCGACAC GTGCCTTAAA	9300
CATCCCTACA AACATGCCCC AGAACCCCCC AAGACAATAG ACATCAAAAA TAACAATCTA	9360
CGTTTCTTTT TCATATTCAT TCTCCTTTT CACTTGCTAG ATTTTGGAT TTCTTTTCAA	9420
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GATTAAACCA GCTTAGGTCC ATCCCAATCA GTAGAAATAC GCTGACTAAT AAAGCTATGA	9540
CCACTACATA ATAAATCACT TTATACTTGT TCATCACTCG TCCTCCTCCA AACGAAATAC	9600
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GTACTCATCC CGTTCTAGTA GGCTAATGGT CTGTCTGGAA ACCCCTGCCA GTTTGGCTAG	9720
GTCCGTTTGA TTGAGACCAT CCGGAGCTCG AAGCTCTTTT AGACGATTTT TTAGTTGCAT	9780
GTTACACACC TACTCTCCGT CAAATTCAAC GGTTTGGATA TCCTCAATAC GTTGCAACTT	9840
GAATTTTCT TTTCCCGTAT TATCTACAG TCGTAGCTTT ACCCATTCCT CATCAACATC	9900
CACAACTTCC CAGTTATCTG GCCCAATATA CACTCCCGTT ATAATTGGTT CCTTTCCAAT	9960
CATTTCTTGT AATAATCTCG ACATTTCTGC GTTTCCTTTC TCTTTTCGCT CAAGTCTTTT	10020
GATTTTATTC TCTAGTTTCT TGATTTTTTT AGAATTATTA GAATAAAGA AAATCATAAA	10080
TAGTATAAAT CCTAGTACCC ACATTATAAC TCCTTTCTGC TTCCTATTTT TTAACCTGAA	10140
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TGTCATTTTG CAAAAGAAAA AGGTCAGGAG TAGGTTCCCTG ACCACTTTAT CTATCATTAA	10260
TACTCTTCTA AAATCTCTTC AAACCACGTC AGCTTCACCT TGCCGTAGGT ATGTTTACTG	10320



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ACTTCGTCAG TTTCATCTAC AACCTCAAAA CCATGTTTTG AGCTGACTTC GTCAGTTCTA	10380
TCCACAACCT CAAAACCATG TTTTGAGCTG ACTTCGTCAG TTCTATCCAC AACCTCAAAA	10440
CCATGTTTTG AGCTGACTTC GTCAGTTCTA TCCACAACCT CAAAACAGTG TTTTGAGCAA	10500
CCTGCGGCTA GCTTCCTAGT TTGCTCTTTG ATTTTATTG AGTATAAAAT CCTAGTTTTT	10560
CAAAGATTTC TGAGAAGTTT TGGCTGATTG TCTCAAGTGA CACTTGCACT TCTTCTCGGG	10620
TTTGGTTGTT CTTGACCGTC ACTTGTCCGC TTTGACTTC GCTCTCTCCT AGGGTGATGA	10680
GGGTCTTAGC CGCAAAGACA TCGGCTGACT TGAAGTGAAG TTTTAGTTTA CGGTTGAGGT	10740
AATCACGCTC TGCTTTGAAA CCTTGTGGC GAAGAGCCTG TACCAATTCC AAGGCCTTGA	10800
TATTTGCCCC TTCGCCCCAG ACTGCGATAT AGACATCTAG GCGGTTTTCG ATAGGGAGGG	10860
TCACACCTTG CTTTCAAGG ATGAGAAGCA GCGCTCTAC ACCAAGTCCA AAACCAATC	10920
CAGCAGTTTC AGGGCCTCCA AAGTAAGCAA CCAAACCATC GTAGCGACCA CCCGCACAGA	10980
CGGTCAAGTC ATTGCCCTCA ATCTCTGTGA TAAACTCGAA AATGGTGTGG TTGTAGTAGT	11040
CCAGACCACG CACCATATTG GTATCGATGA TGTAATCTAC TCCAAGATT TCCAACATCT	11100
GACGCACAGC ATCAAAATGA GCTTGGCTTT CTTCATCAAG AAAGTCCAAG ATAGACGGCG	11160
CATTCTCTAC TGCCACCTTG TCTTCTTTTT CCTTAGAGTC CAAGACACGA AGAGGATTTT	11220
CCTCCAAGCG ACGTTGGCTA TCCTTAGACA AGGTCTCCTT GAGCGGTGTC AAATAGTCAA	11280
TCAAGGCTTG GCGGTAGGCT GCACGGCTCT CAGGATTTCC AAGAGTGTG AGGTGCAATT	11340
TGACACCTTG AATACCGATT TCCTTCAAAA AATGGGCTGC CATAGCGATT GTTCCACAT	11400
CGGTAGCTGG ATTGCTAGAG CAAAACACT CAACACCAAT CTGGTGGAA TGGCGCAAGC	11460
GCCCTGCCCTG TGGACGCTCA TAACGGAACA TAGGTCCCAT GTAGTAGAAC TTGCTTGGCT	11520
TTTGCACTTC TGGGGCGAAA AGTTTATTTT CCACATAGGA ACGGACAACG GGTGCAGTTC	11580
CTTCTGGACG GAGGGTAATA TGACGGTCAC CCTGTGCTA AAAATCGTAC ATTTCTTGG	11640
TTACGATATC CGTTGTATCT CCGACAGAGC GACTGATAAC CTCGTAATGC TCAAAAATAG	11700
GCGTGCGCAC TTCTGCATAG TTGTAGCGTT TGAAAATCTC ACGGGCAAAG CCCTCAACGT	11760
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TCATAGGGAA TCCTCTTTAA ACTTAATAGT CTTATTTTAC CATAAATAGA GGGATTAAAA	11880
CAGTAAGAAA AAAATTAGGA TTTAGATATC ATTTTGTAGA TTAAGAATTG TCAAAAAAAT	11940
AGCTAGCAAG GAAAGACCAA CAAATAGCAT CCAAGTCAAC TGTATATTCC ATACGGCTAC	12000
TAGTGAAAAA CAAGCTGTTT CCACAGGTAT GGATAAGGTA AACAATAGAC CTAAAAAATT	12060
ACTAGTACGA GCTAGAACCT CTGGAGCTAG ATTTTTCATG AGCATGGCAC TAATCTTGG	12120

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TTGAACTTTA CCAGACACAT ACAGAGTAAA GAAGAGAAAT AGCAAACCAA GCACGACTTG	12190
ATTGAATAAA TTAGCCAAAC CAACTAGACT AAGTCCTACG GTCTCCCACA TCATCAATCT	12240
AGGCAAGGAC TGCTTCCCAA AATAATCATT GCCCGTAAGG CTA CTGATGA TGACTGATAC	12300
TAAAACACAG AATTGATTGA TAAATAGTGC CTCTGTATAA <u>GA</u> AAAAATTCA AGAGAGAATG	12360
GCTCAAAAAG AAGATATTAT AAATTCCACC CAAAGCGCCA CCCAAGGAAT TAATAAGCAA	12420
GACAGCAAAG AGCATAAAAC CAAAGTTTTT CTGTCCACTT TTAAGAAAAA CGAGACGTAA	12480
ATTTCCGTAA ATTGTTAGGA ACTGGTCTTT GATAGAAAGC TTCTCATTTT TTAAGTTTTT	12540
ACCATCAGCA GATGACATTG ACAGGCTCAA TTTGCTTTTT CCTAAAAAGA GGATAGTGGC	12600
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ACGCAGGCCA CCTGCAAAAT CACTGATGAT ATCACTAATG ACATTGATCA AACACAGGCT	12840
AGAAAAGGCA AAGAGACTAG CTTGCTGAAC AACTAGGGCT GCTAGAAAAA ATAGAACC GC	12900
CTGAAACAAA CCGCTATAGA CCATCCATTT GACCTTGTC CTCGTGTAAT CTGCCCCAAT	12960
CCCTGCAAAA ACTGTAAAGA GGGTCGGAAG AATCATGACA ATATTCGCCA TAGCAACAGC	13020
AAAAGATGCT TGTGACAAGG TCGATGCATA GACGATAAAG ACCAGGTTGA AAATCGAAAC	13080
ACCAAAAGCA TTGAAGAAGC GTGG	13104

(2) INFORMATION FOR SEQ ID NO: 35:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 19250 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 35:

CCGGGCAAAT AGTTTTGAAC TTTTCATCAT TTTCTCCTTT AAAACTTTCT CTCCATTATA	60
GACTCTTTTC AGAAAGTTGT CAACAGAATT TTCAGAATTT TTGAAAATTA TTTTTCAAAC	120
AACATCTTTG CAAAAAATAT GAATATCGTA AGCGCGTCAT AACAAGGTAT CTATCATTCA	180
TGGAGCTCCT CTTGTATACT ATTAGTAAAG TAAATATTGG AGGATATTTT AATGCCACAA	240
CCTATTGTTT CTGTAGAGAT TCCACAATCT CGTCGTTTTG ATTCTAAAAA GAGAAATGAT	300
ATTCTTCTTA AAATTCGTAT TGGCAAGCTT GAAGTAAGTT TTTTTCAAATC TCTCAATCTC	360

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GAAATGATAG AACAGCTTTT GGATAAGGTG TTGCTCTATG ACAATTCATC TATCTAGCCT	420
AGGGCAGGTC TATCTCGTGT GTGGGAAAAC TGATATGAGA CAAGGAATCG ATTCACTGGC	480
TTATCTCGTT AAAACCCACT TTGAATTGGA TCCTTTCTCC GGTCAAATCT TTCTCTTTTG	540
TGGTGGACGT AAAGACCGCT TTAAAGTCCT TTAAGTGGAT GGTCAAGGAT TTTGGCTACT	600
ATATAACGC TTTGAGAACG GCAGACTGAC TTGGCCCAGT ACAGAAAAGG ATGTCAAAGC	660
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CTGTCCTGAT CGATTTGTCC TGTATTATT TCAATTTACT ATAAATCCAT CAGAAAGTCG	840
TGATTTCTAT TGAAATGAGG ACTTTCTTTT TATACTCATC TGCTTTCAA AAGCACTCTA	900
GTCCATCTCC GATTAACGAT GGACTTTATC ACCTCCTTCT CCAGTCCTTG TATAACATCT	960
TGAAGTTGAT TCATGACATC TTCCAAAGTT CGAAAGGCTT TATTCTTAAA TCCACGTTTA	1020
CGAATCTCTT TCCACACTTG TTCAATGGGG TTCATCTCTG GTGTGTATGG AGGAATAAAT	1080
GCAAAGCCAA TATTAGTCGG AATCTTTAAG GTACTTGATT TATGCCATAT AGCATGTGCC	1140
ATAACGAGTA AAAGATAATC ATCTGGATAA GCTTGTGAAA GCTCCTATTC CTAAAGCCCC	1200
TTTATAACCT CTTGCGAGAG AGACTATTGA CTCAGCCCTT ACTTCATGCG GATGAAACCT	1260
CCTATCGGGT TCTAGAGAGT GATAGCCATC TGACCTACTA TTGGACTTTT TTGTCAGGTA	1320
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TACAAGAATT CCTAGGAGAT TATTCTGGCT ATGTTTCATTG TGATATGTTG CGGCAGTAAC	1440
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ATTCCTTATG AATACCAAAG CGTTTTTGCT TAAATATAAC CGGACCTTCT GAATCAAGTT	15000
TAATCGCAAT TGCAATTATC ATAAAAACCG GACACAATAT TATTATCCCT ATTAAAGATA	15060
ATAATATATC ACCTAATCGT TTTATTATAC CGTACATAAA CAACCTCCAA CTATAAATTC	15120
TATTTCCATT TTTCACTCTA TTTCCATTG ACAAAATTA TCAGGCAGTA CATGCAACTA	15180
CAGAAACTCA ATATATATTT GGTCACTCAA TGATTTTCAG AAATATAATT CTTTATCCT	15240
CTACGTCAGA TAAAACTTTT CTCCATCTAA ACAAAATTTA TTTGTTTCAG TAATATATGA	15300
GTTCTCAATA ATGAATTAGA AGGTCCAGTT CAATTATTCT TCCAAATAGA CCGAATATTA	15360
TTTGAAGACA TATCGGTTTC TGAAATTGCA ATCAGTACAT AAGCTAATAA ACTGATAAGT	15420
ATGCTCTGTA AGAATGCCAG AGTTATATTG TAGTCCCCCT CCATACTATA TTCATTTTAT	15480
TTTTTACCAT AATTTCCATA GGAACCGTAA ACTCCATACT TATTAACCGA GATATCCAAT	15540
TTATTTAAAA CAACTCCTAG GAACAGTTTC CCTGTTTGTT TTAATTGTTG TTTCGCTTTT	15600
TGGATATCAC GTTTATTGCG CTCACCTGTT GCTGTTACCA AGATGGACGC ATCACACTTT	15660
TGAGTGATAA TTGCCGCATC AATAACAATT CCAATAGGCG GTGTATCAAT AATGATATAA	15720
TCAAAATATT TACGCAATGT TTCAATCATA TCATTTAAAT TTTTACTTTG TAACAAGGCT	15780
GTAGGGTTTG GTGATACAGA TCCCATTGA ACTACAAATA AATTTCAAT ATTTGTATCA	15840
CATAAACCGT GAGATAAATC AGCTGTCCCA GATAAAAAAT CTGTTAGCCC TGTAATTTT	15900
TCACGAGATT TAAAACTCC TAACATAACT GAATTTGAG TATCGCCATC GATCAAAAGA	15960
GTTTTATAGC CTGCACGCGC AAACGACCAT GCTATATTTA TGGAAGTAGT TGTTTTTCCT	16020
TCCCCAGGGT TAACAGAAGT AACGGAAATT ACTTTTAGTT TATCTCCGCT CAACTGTATA	16080
TTTGTTACACA AGGCATTGTA ATATTCTTCT GCCTTCTTAA TGAACCTCCAG TTTTTTTTGT	16140
GCTATTTCTA ATGTCGGCAT CCTTCTCTCC TATTTCAACT TACCCAAGTT TGGCACAAC	16200
CCCAAAAGTG TCATCTGCAA TGTATTTTCG ATATCTTCCG GACGTTTCAC ACGAGTATCC	16260
AAAAGTTCAA GATGAAGAAC TATAACACTA GTTCCAATCA CCCCTGCCAA AAAACCAATT	16320

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AGTGTATTGC GTTTAATATT TGGCGAAGAC GGGGATATCG CCGGCCTTGC CTCCTCCAGT	16380
GTTGTACAGT CAGAAACACG AGTAATACTG ATAATTTTTT GAGCAGCTAC TTCTCTCAAA	16440
GAGTTAGCGA TACGGCTTGC CTCTTCAGGA ACTCGATCAT TAACTGAAAT AGAGACAATA	16500
CGGGTATCAA CTGGTACTGT CACTTTAATT TTATTAGCCA AACCTTTTGG CGTCAAATCT	16560
AGTTTCAAAT CAGAAACAAC TTCCTCCAAA ACATCCTGCG AAAGGATAAT CTCACGGTAG	16620
TCTTTTACCA GATAAGTTCC TGCCTGCAAA TCCTGATTG TCAACCCCGG CTTGTCTCCT	16680
TGATTGCGAT TCACTACGTA AATTGCGGTG GTACTCGTAT ATTCTGGCTT AACAAATAAA	16740
GTGCTATATG CAAAAGCCCC CGCACCTGTC ACAAGTGCCA CTATTAAAT CATTAGCTTG	16800
CGTTTCCACA AGCTTTTAAC TAATTGAAAT ACATCGATTT CTATCGTATT TTGTCTTTT	16860
ATCATTTCTC CTAAATTAGT TGATCCATTA CAATTTTTCG AGGATTGTCT ATAAAAAGTT	16920
CCTGAGCCTT CGCTTCTCCG TATTTTGGG TAACAAGGTC ATATGCTTCT GCCATATGAG	16980
GAGGTCTACC GTCTAGATTG TGCATATCAC TTGCAATGAC ATGAACCAAA TCCTGCTCTA	17040
AAAAATACTG AGCTCTTTT TTCATGAATT TATAACGTTT GCCAAAAAGT TTGGGTTTGA	17100
GGACATGTGA ACTATTTACT TGGGTGTAAC AGCCCATATC GATCAGTTCT CGAACGCGTT	17160
TTTCATTATT TTCAAGAGCA TCATAGCGCT CAATGTGGGC AATGACTGGA GTAATCCCA	17220
ACATCAAGAT CTGCTCAAG GCGCTATGAA TATCGCGATA AGGAGTGTTT AACTAAACT	17280
CTATCAAGGC ATAACGACTA TCATTGAGGG TCGGAATCCG CTTTTTTTCC ACCTTATCCA	17340
GAACATCTGG TGTGTAATAA ATTTAGCCCC CGTAAGCAAT GACCAAGTCA CTCGCCACTT	17400
CCTTAGCTAT TTCCCGAACC TGAAGAACT TTTCTGCTAT CTTCTCTTCC GGAGTTTCAA	17460
ACATGCCCTT GCGACGGTGA GAGGTAGAAA CAATGGTTCG CACCCCTGT CTGTAGGATT	17520
CTGCCAAGAG AGCCTTGCTT TCCTCTCTTG ACTTGGGACC GTCATCTACA TCAAAAACGA	17580
TATGCGAATG GATGTCTATC ATTTATCTA CCCTCCATCA CATCCTGTAT AGCTGCTTTA	17640
ACTACAGCTA AACTACTATC ATCTATTTCC ATCACATAGA GGTACTGTC TGGCATGCA	17700
TAAGAAGGAA GATCCATCCG ACCTGTCCCT TTTAAATCTT GAGAATTTAC TTTATAATTC	17760
CCTCCACTTT CTAAGTACG AATGACCAAA TTTATCATGG TCTCAAGTGG CATATTTGTT	17820
TGGATAGAAT CTTGCAAGCT ATTAATGATC GTACTATAAT TTTTCAGCAC TTCGGTTGAC	17880
GTAAATTTTT GAAGGATAGC CACAATCACC TTTTGTGAT GCGCCCCGCG GTCACGATCG	17940
CCATCTGCTA GGGAGTAGCG CTCACGAACA AAACCGAGAG CCTGTTCTGA ATCAAGATGA	18000
ACATTGCCTG CAGGGTAATA CTTTCCATTC GTATGGGCAG TAAATTCTTG ATCATTATAA	18060

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ACATCAATTC CACCCAACAA ATCAATCAAT TTCAAAAACG AAGTGAAGTT CAATCGCACA	18120
TAGTAATTGA TATCCACTCC ATAGAGATTT TCTAAGGTGT GAATGGACGA ATCAACTCCA	18180
TAAATGCCCG CATGAGTCAA TTTATCTTTT TGATTATTTT CACCATCTGC GATTGGTACA	18240
TAGGCATCAC GTGGCGTTGT GGTCAAGAGG ATTTTCTTGG TATCTCGATT GACAGTCATC	18300
AGGATGTTGA CATCTGATCG CGACACCGAA CTAATAGGAC CATAGGTGTC AATTCCACTA	18360
ACATAGATAT TGAAAGACTG ACTCTTAGAC GTCTTAGGAG CTTCTACTTT TTTAGTGAAT	18420
CCCTTAGTAT AAATCTTTTT TATCTTCGAT GCGTAGTCTG GATACTCTGA CTCGATGATG	18480
TTTTCAAAGA CACTATTAG GACAATGGCC TTAGTCTCCC CTGCAATCAA ACTCTGTAA	18540
GCTGCCAAGT AAGACGAACT CTGGTTGACC GTCAAATCGG TATTCTGACT TGACTTGATA	18600
TCAGCTAGTA ATTTCTGAAT ATTTTCATTA TTAGTCCCAG TCGGTGCTGT CACACTCGTC	18660
AGTTGCGTAA CATTTTCGAT CTCACTATCT GCTAAAACAG CGACACTGAT TGAATATCTT	18720
GAGTAATTAG AAGTCGCATT TAAACGATTG GTCAGTCCAA CAAACTGCTG TACTGCAAAG	18780
AGCGACACAG AGCTGACAAG GATAGAGAAC ACCAACAGAA AAATAGTAAA CTTTTCAGCT	18840
TTTTTATAGA TAATCAAGAG TAGCCCTACC AAGGCAACTA GTAGGACTAA CGCAGTTACC	18900
ACTAGATTAA GATATCTAAA AGCAAGGATA TTGTAATTAA AGATTAAGAA CAATAAAAAA	18960
CAAACTAACA ATAAATAAAT AGTCAGCAAA ACTATATTAA CACTTCGCTT CACTTTCTGT	19020
GAACGTGATT TTTTAAAACG TCTACTCATG ATTAATACCT ATACATTGAA CATTATACGA	19080
TTATATCACT TTTTACGGT AATGTCTACA CCTTTATTTT TACTATCTGC ATCTTTAAGT	19140
ATCTTAGTAG ACTTCCCGCG AAACAAAAAT ATAGTAAAAT GAAATAAGAA CAGAACAAAT	19200
CGTTCAGGAC AGTCAAATCG ATTTCTAACA ATGTTTTAGA AGCAGAGGTG	19250

## (2) INFORMATION FOR SEQ ID NO: 36:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 21706 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 36:

AAAGTTGAAA GACTGCTAGC TGTTTTGTAT ACCAATCGTT TCCAACTACA GAGCAAACAG	60
TATACAAAGT TTGTTTTTGG ATGTAAGCTT CTTGATGGAC AATCCAAGA AAATCAAGAA	120
ATTGCTGACC TTCAATTTTT TGCCATTGAC CAACTGCCGA ACTTATCTGA AAAACGCATT	180
ACCAAGGAGC AAATAGAGCT TCTTTGCCAG GTTTATCAAG GTCATAGGGG GCAATATCTT	240

GACTAAGAAG ATGATTATCG TATTTCTAAA TCCATTTTAA ACAACTAGCA TGGTATAATA	300
ATATGCAGGA AAATTTTGAA TTATGAGGAA GACTAGATGA ATTTATGGGA TATTTTCTTT	360
ACGACTCAGG CAACCGAGCC GCCCAAATTT GACCTTTTTT GGTATGTTAG CCTATTTACG	420
CTCTTAGCCT TAACCTTTTA TACAGCCCAT CGCTATCGTG AAAAGAAGGT TTACCAACGA	480
TTTTTC AAA TCTTGCAGAC TGTTCACTTA ATCCTTCTTT ATGGTTGGTA CTGGGTCAAT	540
CATATGCCAC TGTCAGAAAG CCTACCTTTT TACCATTGCC GTATGGCTAT GTTTGTGGTA	600
CTCTTGCTTC CTGGTCAATC CAAATATAAA CAATACTTTG CATTATTGGG AACATTTGGG	660
ACATTAGCAG CCTTTGTTTA TCCAGTGCCA GATGCTTACC CTTTCCACA TATCACCATT	720
CTATCCTTTA TCTTTGGTCA TTTAGCACTC TTGGGGAAC CTCTAGTTTA TCTATTGAGA	780
CAGTATAATG CGCGATTGCT GGATGTGAAG GGAATTTTTC TCATGACCTT TGCCCTAAAT	840
GCCTTGATTT TTGTGGTCAA TTTGGTGACA GGTGGCGATT ACGGATTTT GACAAAACCG	900
CCATTGGTTG GGGATCACGG TCTAGTAGCT AATTATTTAC TTGTTTCAAT TGTGCTGGTA	960
GCTACTATCA GTTTGACTAA GAAAATCTTA GAATCTTTT TAGCTCAAGA AGCAGAAAAA	1020
ATGATTGCAA AGGAAGCTTA ACACAGAGCT TTCTTTTTTG CTCTTAGAGA GTTTTACAA	1080
GCAGCTTATA AAATAAGAAT TTCTGAATAG ACAAACCTCAA AAAATGGCTG GGAATTTAG	1140
GAAAAAAGCA AGCACGATTA AATTTTTTGT GTTATAATAT TTTGTGAATA GCTATGCCTA	1200
TGTTTAGCTA TGGAATAATA CGAAGTGCGA AACTTGGAAG ATAGAGAGGA AGCGATGTAA	1260
TGGCTAGAGA AGGCTTTTTT ACAGGTCTAG ATATTGGAAC AAGCTCTGTC AAGGTGCTTG	1320
TGGCCGAGCA GAGAAATGGT GAATTAAATC TAATTGGCGT GAGTAATGCC AAAAGTAAAG	1380
GTGTAAAGGA TGGAATTATT GTTGATATTG ATGCAGCAGC AACTGCTATC AAGTCAGCCA	1440
TTTCCCAAGC GGAAGAAAAG GCAGGCATTT CGATTAAATC AGTGAATGTC GGCTTGCCCTG	1500
GTAATCTTTT GCAGGTAGAA CCAACTCAGG GGATGATTCC AGTAACATCT GATACTAAGG	1560
AAATTACGGA TCAAGATGTT GAAAATGTTG TCAATCAGC TTTGACAAAG AGTATGACAC	1620
CTGACCGTGA AGTCATTACC TTTATTCTG AAGAATTTAT TGTGGATGGT TTCCAACGGA	1680
TTCTGACCC ACGTGGCATG ATGGGGGTTT GCCTTGAAAT GCGTGGTTTG CTTTATACAG	1740
GACCTCGTAC TATCTTGAC AATTGCGTA AGACGGTTGA GCGTGCAGGT GTTCAGGTTG	1800
AAAATGTTAT CATTTACCA CTAGCAATGG TTCAGTCTGT TTTGAACGAA GGGGAACGTG	1860
AATTTGGTGC TACAGTGAAT GATATGGGG CAGGTCAAAC GACTGTCGCT ACAATCCGTA	1920
ATCAAGAACT CCAGTTCACA CATATTCTCC AAGAAGGTGG AGATTATGTA ACTAAAGATA	1980

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TCTCCAAGGT TTTGAAAACC TCTCGCAAAT TAGCGGAAGG CTTGAAACTG AATTACGGGG	2040
AAGCCTATCC GCCTCTTGCA AGCAAAGAAA CCTTCCAAGT AGAGGTTATT GGAGAAGTAG	2100
AAGCAGTCGA AGTGACGGAA GCCTACTTGT CAGAAATTAT TTCTGCACGA ATCAAGCACA	2160
TCCTTGAACA AATCAAGCAA GAATTAGATA GAAGGCGTCT ATTGGACCTC CCTGGTGGTA	2220
TTGTCTTAAT CGGTGGGAAT GCCATTTTAC CAGGTATGGT TGAGCTTGCT CAGGAAGTCT	2280
TTGGCGTCCG TGTCAAGCTT TATGTTCCAA ATCAAGTTGG TATCCGTAAT CCAGCCTTTG	2340
CGCATGTGAT TAGTTTATCA GAATTTGCGG GTCAATTAAC AGAAGTTAAT CTTTGTGGCTC	2400
AGGGAGCGAT AAAAGGTGAG AATGACTTAA GTCATCAGCC AATTAGTTTT GGTGGGATGC	2460
TGCAAAAAAC AGCTCAGTTT GTACAATCAA CGCCTGTTCA ACCAGCTCCT GCTCCAGAAG	2520
TAGAGCCGGT GCGCCCTACA GAACCAATGG CGGATTTCCA ACAAGCTTCA CAAAATAAAC	2580
CGAAATTAGC AGATCGTTTC CGTGGATTGA TCGGAAGCAT GTTTGACGAA TAAAGAGGAA	2640
AAATAAATTA TGACATTTTC ATTTGATACA GCTGCTGCTC AAGGGGCAGT GATTAAAGTA	2700
ATTGCTGTCC GTGGAGGTGG TGGCAATGCC ATCAACCGTA TGGTCGACGA AGGTGTTACA	2760
GCGGTAGAAT TTATCGCAGC AAACACAGAT GTACAAGCAT TGAGTAGTAC AAAAGCTGAG	2820
ACTGTTATTC AGTTGGGACC TAAATTGACT CGTGGTTTGG GTGCAGGAGG TCAACCTGAG	2880
GTTGGTCGTA AAGCCGCTGA AGAAAGCGAA GAAACACTGA CGGAAGCTAT TAGTGGTGCC	2940
GATATGGTCT TCATCACTGC TGGTATGGGA GGAGGCTCTG GAACTGGAGC TGCTCCTGTT	3000
ATTGCTCGTA TCGCCAAAGA TTTAGGTGCG CTTACAGTTG GTGTTGTAAC ACGTCCCTTT	3060
GGTTTTGAAG GAAGTAAGCG TGGACAATTT GCTGTAGAAG GAATCAATCA ACTTCGTGAG	3120
CATGTAGACA CTCTATTGAT TATCTCAAAC AACAAATTGC TTGAAATTGT TGATAAGAAA	3180
ACACCGCTTT TGGAGGCTCT TAGCGAAGCG GATAACGTTT TCCGTCAAGG TGTTCAGGG	3240
ATTACCGATT TGATTACCAA TCCAGGATTG ATTAACCTTG ACTTTGCCGA TGTGAAAACG	3300
GTAATGGCAA ACAAAGGGAA TGCTCTTATG GGTATTGGTA TCGGTAGTGG AGAAGAACC	3360
GTGGTAGAAG CGGCACGTAA GGCAATCTAT TCACCACTTC TTGAAACAAC TATTGACGGT	3420
GCTGAGGATG TTATCGTCAA CGTTACTGGT GGTCTTGACT TAACCTTGAT TGAGGCAGAA	3480
GAGGCTTCAC AAATTGTGAA CCAGGCAGCA GGTCAAGGAG TGAACATCTG GCTCGGTACT	3540
TCAATTGATG AAAGTATGCG TGATGAAATT CGTGTAACAG TTGTTGCAAC GGGTGTTCGT	3600
CAAGACCGCG TAGAAAAGGT TGTGGCTCCA CAAGCTAGAT CTGCTACTAA CTACCGTGAG	3660
ACAGTGAAAC CAGCTCATTC ACATGGCTTT GATCGTCATT TTGATATGGC AGAAACAGTT	3720
GAATTGCCAA AACAAAATCC ACGTCGTTTG GAACCAACTC AGGCATCTGC TTTTGGTGAT	3780

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TGGGATCTTC	CCCCGGAATC	GATTGTTTCGT	ACAACAGATT	CAGTCGTTTC	TCCAGTCGAG	3840
CGCTTTGAAG	CCCCAATTTC	ACAAGATGAA	GATGAATTGG	ATACACCTCC	ATTTTTCAAA	3900
AATCGTTAAG	TAAATGAATG	TAAAAGAAAA	TACAGAACTT	GTTTTTCGAG	AAGTTGCAGA	3960
GGCTAGTCTG	AGTGCTCATC	GAGAGAGTGG	TTCGGTCTCT	GTCATTGCAG	TTACCAAGTA	4020
TGTAGATGTA	CCGACAGCGG	AAGCCTTGCT	TCCGCTAGGT	GTCCATCATA	TCCGTGAAAA	4080
TCGTGTAGAT	AAGTTTCTGG	AAAAATATGA	AGCTTTAAAA	GATCGAGATG	TGACTTGGCA	4140
TTTGATTGGT	ACCTTGCAAA	GACGTAAGGT	GAAAGATGTC	ATTCAATACG	TTGATTATTT	4200
CCATGCATTG	GACTCAGTAA	AGCTAGCAGG	GGAAATTCAA	AAAAGAAGTG	ACCGAGTCAT	4260
CAAGTGTTC	CTTCAAGTAA	ATATTTCTAA	AGAAGAAAGC	AAACACGGTT	TTTCGAGAGA	4320
GGAAGTCTG	GAAATCTTGC	CAGAGTTAGC	CAGACTAGAT	AAGATTGAAT	ATGTTGGTTT	4380
AATGACGATG	GCACCTTTTG	AGGCTAGCAG	TGAGCAGTTG	AAAGAGATTT	TCAAGGCGGC	4440
CCAAGATTTA	CAAAGAGAAA	TTCAAGAGAA	ACAAATTCCA	AATATGCCTA	TGACCGAGTT	4500
AAGTATGGGA	ATGAGTCGTG	ATTATAAAGA	AGCGATTCAA	TTCGGTTCCA	CTTTTGTTCC	4560
TATAGGTACA	TCATTTTTTA	AGTAGGAGAG	AACCATGTCT	TAAAAGATA	GATTTCGATAG	4620
ATTTATAGAT	TATTTTACGG	AGGATGAGGA	TTCAAGTCTC	CCTTATGAAA	AAAGAGATGA	4680
GCCTGTGTTT	ACTTCAGTAA	ATTCTTCACA	GGAACCGGCT	CTCCAATGA	ATCAACCTTC	4740
ACAGTCGGCT	GGCACAAAAG	AGAACAATAT	CACCAGACTT	CATGCAAGAC	AACAGGAATT	4800
GGCAAATCAG	AGTCAGCGTG	CAACGGATAA	GGTCATTATA	GATGTTTCGT	ATCCTAGAAA	4860
ATATGAGGAT	GCAACAGAAA	TTGTTGATTT	ATTGGCAGGA	AACGAAAGTA	TCTTGATTGA	4920
TTTTCACTAT	ATGACAGAGG	TCCAGGCTCG	TCGTTGTTTG	GACTATTTGG	ATGGAGCTTG	4980
TCATGTTTTA	GCTGGAAATT	TGAAAAAGGT	AGCTTCTACC	ATGTATTTGT	TGACACCACT	5040
GAACGTTATT	GTAAATGTTG	AAGATATCCG	TTTACCAGAT	GAAGATCAAC	AGGGTGAGTT	5100
CGGTTTTGAT	ATGAAGCGAA	ATAGAGTACG	ATAATGATTT	TTTTAATTCT	TATGATTTAT	5160
AATGCAGTGG	ATATTTACTC	CCTGATTTTG	GTAGCCTTCG	CTGTCATGTC	TTGGTTTCCA	5220
GGTGCCTACG	AATCCAGTTT	AGGTCGTTGG	ATTGTAGCGT	TGGTGAAACC	AGTGCTTGCT	5280
CCCTTGCAAC	GCCTGCCTTT	ACAGATAGCG	GGTCTTGATT	TATCTGTTTG	GGTTGCGATT	5340
GTTTTGGTTC	GATTTTTAGG	AGAAAACCTA	GTGCGTTTTT	TGCCGATGAT	AGGATGAATA	5400
AAGGGATTTA	TCAGCATTTT	TCCATAGAAG	ATCGTCCATT	TCTTGACAAG	GGAATGGAAT	5460
GGATAAAGAA	GGTAGAAGAT	AGCTATGCTC	CTTTTTTAAC	TCCTTTTATC	AATCCTCATC	5520



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AGGAGAAGCT ATTAAAGATT TTGGCCAAAA CCTATGGTCT TGCTTGTAGC AGTAGTGGGG	5580
AATTCGTCTC GAGTGAGTAT GTTCGAGTTT TATTATACCC AGATTATTTT CAACCAGAGT	5640
TTTCAGATTT TGAAATATCT CTCCAGGAAA TTGTGTATTC CAATAAATTT GAACATTTAA	5700
CGCATGCTAA GATTTTAGGG ACAGTCATCA ATCAATTAGG GATTGAACGG AAACTTTTTG	5760
GAGATATCCT AGTAGATGAA GAACGGGCGC AGATTATGAT TAATCAGCAG TTTCTTCTTC	5820
TCTTTCAAGA TGGACTAAAG AAAATTGGTC GTATACCTGT TTCGCTGGAG GAACGTCTTT	5880
TCACCGAGAA AATAGATAAG CTAGAACAGT ATCGAGAACT GGATTTATCT GTGTCTAGTT	5940
TTGCGATTAGA TGTTCTTTTA TCAAATGTTT TGAACTATC TAGGAATCAA GCAAACCAAGT	6000
TGATTGAAAA GAACTTGTCT CAAGTAAATT ATCATGTGGT AGACAAATCA GATTACACTG	6060
TTCAAGTTGG AGACTTGATT AGTGTGAGAA AATTTGGTCG CTTGAGATTA CTTCAAGATA	6120
AGGGACAAAC GAAAAAGAG AAGAAAAAAA TAACCGTCCA GTTATTATTA AGTAAGTGAG	6180
GAATAGAATG CCAATTACAT CATTAGAAAT AAAGGACAAG ACTTTTGGAA CTCGATTGAG	6240
AGGTTTTGAT CCAGAAGAAG TCGATGAATT TTTAGATATT GTGGTTCGTG ATTACGAAGA	6300
TCTTGTGCGT GCGAATCATG ATAAAAATTT GCGTATTAAG AGTTTAGAAG AGCGTTTGTC	6360
TTACTTTGAT GAAATAAAG ATTCATTGAG CCAGTCTGTA TTGATTGCTC AGGATACAGC	6420
TGAGAGAGTG AAACAGGCGG CGCATGAACG TTCAAACAAT ATCATTGATC AAGCAGAGCA	6480
AGATGCGCAA CGCTTGTGG AAGAAGCTAA ATATAAGGCA AACGAGATTC TTCGTCAAGC	6540
AACTGATAAT GCTAAGAAAG TCGCTGTTGA AACAGAAGAA TTGAAGAACA AGAGCCGTGT	6600
CTTCCACCAA CGTCTCAAAT CTACAATTGA GAGTCAGTTG GCTATTGTTG AATCTTCAGA	6660
TTGGGAAGAT ATTCTCCGTC CAACAGCTAC TTATCTTCAA ACCAGTGATG AAGCCTTTAA	6720
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TGATATGACA CGTCAGTTCT CTCAAGCAGA AATGGCAGAA TTACAAGCTC GTATTGAGGT	6840
AGCCGATAAA GAATTGTCTG AATTTGAAGC TCAGATTAAA CAGGAAGTGG AAGCTCCAAC	6900
TCCTGTAGTG AGTCCTCAAG TTGAAGAAGA GCCTCTGCTC ATCCAGTTGG CCCAATGTAT	6960
GAAGAACCAG AAGTAGCTCC AATGCATCCG ATAGGTCCAA CACCAGCTAC AGAACTGTT	7020
GATTCAATAC CGGGATTGTA AGCACCGCAA GAATCTGTTA CAATTTTATA AGAAATATTC	7080
TGAGAACAAT ATCTTATCCT TATATTTCCA GCGAGCAGGA GATGGTGTGA GTCCTGTAAT	7140
CCCTATTGAT AAGATTATCC TCTCAAAAAC TCAAGTCTGA AGCTAGTAAG ATTTGACGTT	7200
TCCCACGTTA CGGGATAAGA GGGAGAAAGA CTAAATCTTT TTCCGAATAA AGGTGGTACC	7260
ACGATTTTCG TCCTTTTGG AAGTCGTGGT TTTTAATTTG TTATTATTTA TAAAGGAGAT	7320

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ACCATGAAAC TCAAAGACAC CCTTAATCTT GGGAAAAC TG AATTCCTCAAT GCGTGCAGGC	7380
CTTCCTACCA AAGAGCCAGT TTGGCAAAAG GAATGGGAAG ATGCAAAACT TTATCAACGT	7440
CGTCAAGAAT TGAACCAAGG AAAACCTCAT TTCACCTTGC ATGATGGCCC TCCATACGCT	7500
AACGGAAATA TCCACGTTGG ACATGCTATG AACAAGATTT CAAAAGATAT CATGTTCGT	7560
TCTAAGTCTA TGTCAGGATT TTACGCACCA TTTATTCCTG GTTGGGATAC TCATGGTCTG	7620
CCAATCGAGC AAGTCTTCTC AAAACAAGGT GTCAACCTA AAGAAATGGA CTTGGTTGAG	7680
TACTTGAAAC TTGCGCTGA GTACGCTCTT TCTCAAGTAG ATAAACAACG TGAAGATTTT	7740
AAACGTTTGG GTGTTTCTGG TGAAGGGAA AATCCATATG TGACCTTGAC TCCTGACTAT	7800
GAAGCAGCTC AAATTCGTGT ATTTGGTGAG ATGGCTAATA AGGGTTATAT CTACCGTGGT	7860
GCTAAGCCAG TTTACTGGTC ATGGTCATCT GAGTCAGCAC TTGCTGAAGC AGAGATTGAA	7920
TACCATGACT TGGTTTCAAC TTCCCTTTAC TATGCCAACA AGGTAAAAGA TGGCAAAGGA	7980
GTTCTAGATA CAGATACTTA TATCGTTGTC TGGACAACGA CTCCATTTAC CATCACAGCT	8040
TCTCGTGGTT TGACGGTTGG TGCAGATATT GATTACGTTT TGGTTCAACC TGCTGGTGAA	8100
GCTCGTAAGT TTGTCGTTGC TGCTGAATTA TTGACTAGCT TGTCTGAGAA ATTTGGCTGG	8160
GCTGATGTTT AAGTTTGGGA AACTTACCGT GGCCAAGAAC TCAACCACAT CGTAACAGAA	8220
CACCCATGGG ATACAGCTGT AGAAGAGTTG GTAATTCTTG GTGACCACGT TACGACTGAC	8280
TCTGGTACAG GTATTGTCCA TACAGCCCTT GGTTTTGGTG AGGACGATTA CAATGTTGGT	8340
ATTCCTAATA ATCTGAACT CGCAGTGACT GTTGATGAAC GTGCTATCAT GATGAAGAAT	8400
GCTGGTCTTG AATTTGAAGG TCAATTCTAT GAAAAGGTAG TTCCAACCTG TATTGAAAAA	8460
CTTGGTAACC TCTTCTTTCG CCAAGAAGAA ATCTCTCACT CATATCCATT TGACTGGCGT	8520
ACTAAGAAAC CAATCATCTG GCGTGCAGTT CCACAATGGT TTGCCTCAGT TTCTAAATTC	8580
CGTCAAGAAA TCTTGGACGA AATTGAAAAA GTGAAATTC ACTCAGAATG GGTAAAGTC	8640
CGTCTTTACA ATATGATCCG TGACCGTGGT GACTGGGTTA TCTCTCGTCA ACGTGCTTGG	8700
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ATTGAACACG TAGCTCAACT TTTTGAAGAA TATGGTTCAA GCATTTGGTG GGAACGTGAT	8820
GCCAAAGACC TCTTGCCAGA AGGATTTACT CATCCAGGT CACCAAACGG CGAGTTCAAA	8880
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GTAAACCGTC CTGAATTGAC TTACCCAGCC GACCTTTACC TAGAAGGTTG TGACCAATAC	9000
CGTGGTTGGT TTAACATCAT ACTTATCACA TCTGTGCCA ACCATGGCGT AGCACCTTAC	9060

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AAACAAATCT	TGTCACAAGG	TTTTGCCCTT	GATGGTAAAG	GTGAGAAGAT	GTCTAAATCT	9120
CTTGGAATA	CTATTGCTCC	AAGCGATGTT	GAAAAACAAT	TCGGTGCTGA	AATCTTGCGT	9180
CTCTGGGTAA	CAAGTGTTGA	CTCAAGCAAT	GACGTGCGTA	TCTCTATGGA	TATCTTGAGC	9240
CAAGTTTCTG	AAACTTACCG	TAAGATTTCGT	AACACTCTTC	GTTTCTTGAT	TGCCAATACA	9300
TCTGACTTTA	ACCCAGCTCA	AGATACAGTC	GCTTACGATG	AGCTTCGTTT	AGTTGATAAG	9360
TACATGACGA	TTCCGCTTAA	CCAGCTTGTC	AAGACCATTG	GTGATGCCTA	TGCAGACTTT	9420
GAATTCTTGA	CGATCTACAA	GGCCTTGGTG	AACTTTATCA	ACGTTGACTT	GTCAGCCTTC	9480
TACCTTGATT	TTGCCAAAGA	TGTTGTTTAC	ATTGAAGGTG	CCAAATCACT	GGAACGCCGT	9540
CAAATGCAGA	CTGTCTCTA	TGACATTCTT	GTCAAAATCA	CCAAACTCTT	GACACCAATC	9600
CTTCCTCACA	CTGCGGAAGA	AATCTGGTCA	TATCTTGAGT	TTGAAACAGA	AGACTTCGTC	9660
CAATTGTCAG	AATTACCAGA	AGTTCAAAC	TTTGCTAACC	AAGAAGAAAT	CTTGGATACA	9720
TGGGCAGCCT	TCATGGACTT	TCGTGGACAA	GCACAAAAAG	CCTTGGAAGA	AGCTCGTAAT	9780
GCAAAAGTTA	TCGGTAAATC	ACTTGAAGCA	CACTTGACAG	TTTATCCAAA	TGAAGTTGTG	9840
AAAACCTAC	TCGAAGCAGT	AAACAGCAAT	GTAGCACAAAC	TTTTGATCGT	GTCTGAGTTG	9900
ACCATCGCAG	AAGGACCAGC	TCCGGAAGCT	GCCCTTAGCT	TCGAAGATGT	AGCCTTCACA	9960
GTTGAACGTG	CTACTGGTGA	AGTATGTGAC	CGTTGCCGTC	GTATCGACCC	AACAACAGCA	10020
GAACGCAGCT	ACCAGGCAGT	TATCTGTGAC	CACTGTGCAA	GCATCGTAGA	AGAAAACTTT	10080
GCGGAAGCAG	TCGCAGAAGG	ATTGAAGAG	AAATAAGATT	GAAAAGTCTA	GGCAAAATTC	10140
AATTTGAGAA	GAAAAGACAA	CTAATTTTAT	AGTCTATTAA	ACGCATTGTA	TCAGCTTTTT	10200
GAATACCTGA	TATGATGCGT	TTTTTATTTA	TTTTAAAAAT	TTGCGAGGTA	TGACTTTTTTA	10260
TACTCAACAA	GAATCAAAGA	GAACTTAGC	AAGCTAACAG	TAGTAAGATA	AAATAGGAAT	10320
TTGATATTAG	GGATAAGATT	GGTAAATAGT	GTAATATTTT	TACAACAATA	AATTTATATA	10380
GTTATTTCTG	GTTTCTGAAA	AGTATTATAT	TTTATTTTCAT	ATTATACAAA	TTTTTATTTT	10440
ATAATATCAG	AACATACTTT	TTTTAAAAGC	AAATATGATA	CAATTTTATT	TGAAAAAAAT	10500
AAAAAAGGAG	ATTTTATTAT	AAAATTAATA	AGACTTGCTT	TAATTAGTGG	TATCGTCCGT	10560
CTTGTGGGAG	GAATTTTACT	TCTTATTGGT	CCTTTTGTCT	TGTTGGGAAT	AGCGGTAAAC	10620
ACAGCTGCTA	CAACTCTTAA	TGGAGGAGCT	ACTGCAGGGG	CTTTTTCAGG	TGTAGCCTTA	10680
CTCTTGAATG	CCTTGAAGAT	TGCAATCTT	GTTCTTGCTA	TCATTGCTAT	TGTTTACTAT	10740
AAAGGAGATA	AGCGTGTAGG	TGCAGCTCCG	TCTGTACTAA	TGATTGTTTC	TGGTGGAGTT	10800
AGTCTCATTC	TATTCCGTTT	TAGGATGGG	TTGGGGGGAT	TTTTGCTATT	ATCGGAGGAT	10860

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CTCTATTCCT	TTCAACATTG	AAGAAATTCA	AATCAGAAGA	ATAAAAAGGTA	TTTTAGCATG	10920
AAAAGAACAA	AAAAGTTTAT	CGGTATAGGA	GTAGCTCTAT	TATCTCTTTC	TCTTCTAGTT	10980
GCATGTGGAA	CATAAAGTTC	AAAGAATACT	TCAACAAGTA	ATGATGAGAA	GACAGTAGCA	11040
ACATCCAATA	GTTCAAAAGA	AACAATCACT	TTCGATACAC	CGGTTGTAAC	AGACGATGCC	11100
ATTGAATCAA	TACGCACTTA	TGCAGATTAT	ATAGATCTTT	ATAAAAATAT	TTTTGATGAT	11160
TATTTTACTA	AAGCTGAGGA	AGGTTTCAAA	GGCATAGCTA	TGGAAAATAA	TGACTCGTTT	11220
ACTAAACTAA	AAGAGTCAAC	TCAAAAATTA	TTCGATGCCG	AGAAAAAAG	GTTAAATAAT	11280
GAAGATAGAA	TAGAAACAAC	CAAAAACAAT	GTGATTGCCA	AACATTGTCA	AACAGTCCTT	11340
TCCTTTTGG	TTTGTACTAG	CTTTTTTGTG	AAAAATTGTG	TAAAATAGAA	TAGATAAACG	11400
AGGGGAAACC	TCGGAAAATT	TAAAGGAGAA	TCCATCTAAT	GGTAAAATTG	GTTTTTGCTC	11460
GCCACGGTGA	GTCTGAATGG	AACAAAGCTA	ACCTTTTTCAC	TGGTTGGGCT	GATGTTGATT	11520
TGTCTGAAAA	AGGTACACAA	CAAGCGATTG	ACGCTGGTAA	ATTGATCAAA	GAAGCTGGTA	11580
TCGAATTTGA	CCAAGCTTAC	ACTTCAGTAT	TGAAACGTGC	TATCAAAACA	ACTAACTTGG	11640
CTCTTGAAAGC	TTCTGACCAA	TTGTGGGTTC	CAGTTGAAAA	ATCATGGCGC	TTGAACGAAC	11700
GTCACTACGG	TGGTTTGAAT	GGTAAAAACA	AAGCTGAAGC	TGCTGAACAA	TTTGGTGATG	11760
AGCAAGTTCA	CATCTGGCGT	CGTTCATACG	ATGTATTGCC	TCCAAACATG	GACCGTGATG	11820
ATGAGCACTC	AGCTCACACA	GACCGTCGTT	ACGCTTCACT	TGACGACTCA	GTTATCCCAG	11880
ATGCTGAAAA	CTTGAAAGTG	ACTTTGGAAC	GTGCTCTTCC	ATTCTGGGAA	GATAAAATCG	11940
CTCCAGCTCT	TAAAGATGGT	AAAAACGTAT	TCGTAGGAGC	TCACGGTAAC	TCAATCCGTG	12000
CCCTTGTAAG	ACACATCAAA	GGTTTGTGAG	ATGACGAGAT	CATGGACGTG	GAAATCCCTA	12060
ACTTCCCACC	ATTGGTATTC	GAATTCGACG	AAAAATTGAA	CGTCGTTTCT	GAATACTACC	12120
TTGGAAAATA	AAAAATTGTA	AGTCTAGAAT	TGATTTCTAG	GCTTTTATG	TTAGTATGGA	12180
AGTATGATAA	GGAATAAAAA	ACAAGATTAT	GTACTGGCCT	ACAAGCAACC	AGCTTCAACC	12240
ACTTACATGG	GTTGGGAAGA	AGAAGCTTTA	CCGATAGGCA	ATGGTTCTTT	AGGAGCAAAA	12300
GTATTTGGCC	TTATAGGGGC	TGAACGGATT	CAATTTAATG	AAAAAAGTCT	CTGGCTGGA	12360
GGTCCACTTC	CTGATAGTTC	AGATTATCAG	GGTGGAAATC	TTCAGGATCA	GTATGTTTTT	12420
TTAGCTGAGA	TTCCGGCAGC	TTTGGAGAAG	AGAGATTACA	ATCTGGCTAA	GGAAGTGGCT	12480
GAGCAGCACC	TAATTGGGCC	AAAAACGAGT	CAATATGGGA	CCTATCTGTC	TTTTGGGGAT	12540
ATTCACATTG	AGTTCAGCCA	GCAAGGTACG	ACTTTGTCTC	AGGTGACCGA	CTATCAGAGA	12600

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CAGCTGAATA	TTAGTAAGGC	ACTTGCGACG	ACTTCTTATG	TCTATAAGGG	AACGCGATTT	12660
GAACGTAAAG	CTTTTGGGAG	TTTTCCAGAT	GATCTCTTGG	TTCAATGTTT	TACTAAGGAA	12720
GGGTTGGAAA	CTCTAGATTT	TACTATAGAA	CTATCCTTGA	CCTGTGATTT	GGCTTCTGAT	12780
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CATATCTTGA	TGAAGGGAAG	AGTTAAGGAT	AATGATCTGC	GGTTTGCTAG	TTATCTAGCT	12900
TGGGAAACGG	ATGGAGATAT	TAGAGTTTGG	TCAGATAGGG	TTCAATATATC	AGGAGCCAGT	12960
TATGCCAATC	TCTTCTTGGC	CGCTAAGACG	GATTTTGCCC	AAAATCCTGC	TAGCAATTAT	13020
CGCAAGAAAC	TAGATTTAGA	GCAACAGGTG	ATAGACTTGG	TGGACACAGC	TAAAGAAAAG	13080
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CAATTGGATT	TGGAAGCTGA	TGTTGACGCA	TCCACTACAG	ATGATTTGTT	AAAAAATTAT	13200
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GCGGTCGACA	ATCCTCCTTG	GAATTCGGAC	TATCACTTAA	ATGTCAATCT	GCAGCTGAAT	13380
TATTGGCCAG	CCTATGTTAC	CAATCTCCTA	GAGACGGTCT	TTCCAGTCAT	CAACTATGTA	13440
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TATGACCAAT	CTCTGATTTG	GCAGTTATTT	CATGATTTTA	TTCAAGGCTGC	TCAGGAATTG	13860
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CAAATCACTC	AATCTGGTCG	AATCAGGGAG	TGGTATGAGG	AGGAAGAGCA	GTATTTTCAA	13980
AATGAGAAAG	TGGAGGCCCA	GCATCGGCAC	GCTTCCCATC	TAGTGGGACT	CTATCCTGGC	14040
AATCTCTTTA	GCTACAAGGG	ACAAGAGTAT	ATTGAAGCGG	CGCGTGCTAG	CCTCAATGAT	14100
CGTGAGATG	GCGGCACAGG	CTGGTCCAAG	GCTAATAAGA	TCAATCTCTG	GGCGCGTTTG	14160
GGAGATGGCA	ATCGAGCCCA	TAAATTATTG	GCAGAGCAGT	TAAAGACATC	CACCTTGCAA	14220
AATCTTTGGT	GTAGCCATCC	TCCTTTTCAG	ATAGATGGTA	ATTTTGGTGC	TACTAGTGGC	14280
ATGGCAGAAA	TGTTACTCCA	GTCTCATGCA	GCTTATCTGG	TACCTCTAGC	TGCCCTACCT	14340
GATGCTTGGT	CAACAGGTTT	TGTTTCAGGC	TTAATGGCAC	GTGGACATTT	TGAAGTGAGC	14400

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TTGCGAGTTT CTTATCCAGA TATTGAGAAG AGTGTGATTA AAATGAATCA AGAAAAATA	14520
AAAGCGAAAT GCATGGGGAA AGATTGTATT TCGGTGGCAA CAGCAGAAGG TGATCTTGT	14580
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ATACTCAATG AAAATCAAAG AGCACAACT AGGAAGCTAG CCGCAGGTG CTCAAAAACAG	14760
TGTTTTGAGG TTGCAGATGG AAGCTGACGT GGTTTGAAGA GAGATTTTCG AGGAGTATAA	14820
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GATGCCAGTG TCAAGGATGT GGTGCTCAAC CAGCATCCTC AGGATATTGA CAGTTTGGAG	15540
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CCTCAAAGTA ACCAGTCCCA ACATGGAGGC GACAGCTAAT GCTTATTTAA CAACTGCTCA	15720
AACCTTGGAT TTGGCAGTCA TGTCTAACTA TGGCTTGGAT CAAGCAGACC AAGAAGAACT	15780
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TGGGCAGGAT GCCATTCGGC TGTACTCCAA ACCAGAGCGA ATTCAACCT TTCAGCTAAG	15900
AAAGGGACGA CTTCCTCAGT CAGACAAGGA AATCGCTTTG GCCACTCATT TGCAAGGCCA	15960
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AGACCATACT TATACCATTA CTGGTTTGT GGATTCGGCT GAAATCCTCT CCCAGCGAGA	16080
TATGGGCTAC GCAGGAAGTG GAAGTGGGAC TCTGACAGCC TATGGGGTGA TTTTACCTAG	16140

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TC AATTTGAT CAGAAAGTCT ACAATATAGC TCGTTTGAAA TATCAAGATT TAGCGGGTTT	16200
AAATGCCTTT TCATCAGCTT ATGAAGAAAA ATCCAAGCAA CATCAAGAAG AGCTTGAACA	16260
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TCGTTTAGCA GCTGCTCAAG CTCGTATACA GGCTCAAGAA AGTCAACTAG CCTTGTTTCC	16440
TCAAGTTCAG AGAGAGCAGG CTAGTGCTCA ACTTACCCAA GCCAAGCAGG AATTGGGCAA	16500
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CATGACTCGC TTTGTAGACG AAGAGCGAAC TCATGCAGGG ATTTTAAAGG CCTTGGGTTA	16800
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CAAGGTTGGG CAGACTTTAG AAATTGAAGG TAAGGAACTA AAGGTCGTTG CTATTACTGA	17640
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CATCGTATCG GTTCTATTAG CTATTGTCAT CCTTTACAA CTGACCAATA TCAACGTAGC	17940

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GACCTTGCTT GGTTCCTTCG TCAATTATTA TCTGAGAAAG GTTGATATGT TAGAAGCCCT	18240
GAAATCTGTA GAGTAAGGTA GTTATTTTGA GCTGATTGAA CTTCTATTTA CTAATATTCA	18300
AAAATCCTCC GTTTCAAAGA GCAGGGAACCT CTTTGTGACA GAGGATTTTT TCTATAGGGC	18360
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TCATTTTGAC CTTCAAGGTA GATAACATCA ACGCCGTCGC TGAATGCGAA GTAGTCTTTG	19560
TTTTCAGTTT TCTTGCCATT TTCTACCAAT TTTGTAAACC AAGCATTGCC ACCTGTTTCA	19620
AGGTTGATAC CGTTATAGAA AATCAAATTA GCCTCAGAAG TTTTCTTAAC GTCTTCAGGA	19680



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AGTCGGTTCGT ATTCGTGTGG GTCTTGCCCA ATCGGAACGA TACTATGAAG GTCAATTTTG	19740
TCACCAGCAA TATTTTGTAGT AATATCAGCG ATGATTGAGT TTGTAGCAAC AACTTTTGTAGT	19800
TTTTGACCAG AAGTTGTATC TTTTTCCTCG CTAGCACATG CTACAAGAAT GATTGCAGAA	19860
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TGCCCCTTAT TTTAACAAAT GTTTATTTTT CAGTTTCAAA TATCGTTGTT TGGGAGCGAT	19980
AAAGAAGCTA ATGAGAAAGA AACTAGCAGC TGTAAGCAGC ATACTAGAAC CTGCCGCAAC	20040
ATTAAACTA TAGCCAATAA AGAGTCCCAA AACTGAAGCA GTAGCTCCGA AGGTTGAGGA	20100
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TTTGATGTAG GTAATGATGA TGGCAGCTAG CAATCCAAAG ACAATGGCTC CGATAAAGAA	20580
GTCAAGGCCC AAGATGAAGG ATAGGGCTAC ACCTGGTAAG ACAGCATGTG AAATGGCATC	20640
TCCCATGAGT GACATCCCGC GTAGAATAAT GAAACATCCC ACAGCTCCAG CTACAATCCC	20700
GACGACAATA GCTGTTATCA AGGCATTTTG TAGGAAATGG AATTTTGTCA ATCCATCGAT	20760
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CTTCGAAAGA GAGGAATAGA GGGAAATAGT CCTAACGAGA CGCATTCTCT GACCTTGATG	21240
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TTAACTTCCT TGTATCTGAG AAATGCCTGA CCTTGATGTG GGATAATTCC CAACATACCT	21360
TTTAATAGTG TTGATTTCCC AGCGCCGTTT GGACCAATGA TGCCGGTAAT TGTTGGTCCA	21420
TGGAGCACTA GTGAAATATC CTTAAGTGCC AACGTTTCTT TGTAGGAGAC ACTGAGGTTT	21480

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TCGATACGTA TCATAAACTT GTATTCCTCC TGTCTCTTAA TATACATTAA AAAAAAAATT	21540
AAGTCAAGTT AATTTTGGAA AAAATTAAAA TAATAACTGA AAAATAGATT CTAAGATAA	21500
CTTTCAGGAT AAATTTCTAA ATTATAAAAC GCATAGTATC AAGTGTAATA AACTTGGAAT	21660
TATGCGTTTT ATCATGGAAA GATTTTTTAT AATAGCTAAA AAATAA	21705

(2) INFORMATION FOR SEQ ID NO: 37:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6171 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 37:

GATCCCCAGG AAAAACCGAG GTTTTCCCAA TCAATCGTTA CTGTCATATT CCACTCCTTA	60
TTCTAAAAAC CTATTTCTTA TATTCTACAC TATTTTCTA AAATAGCAAG TATATTTTGT	120
AATTTTCAGA AAATTTCTCC AATAAAAACC AACTCTTAGA ACTGATTCTT CATTTCACCT	180
ATTTATCTTC AGTAACTACT TCCTGAAGAT AAGCGTCAAA AACTTCTTCA TCTGAAATCG	240
TGTCAGAAAT GAAGCTTCCA TTGCTAGTGC GTTCTGACAA GTTCAAGTCT TGCAATCGGC	300
TTTCATAGAT TGTTCCTTTA TTGGATTGGA CAAGCAGAGT TTGGTCGTTT ACATCCACTT	360
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CTAGAATTTT CTCAATGGAA ACACGTTTCA AGCTTCCACG CTGGGTCAAG AGGTAGAAGG	540
ACGAAGTATT ACAGATAAAG CCAGATTGGA GGACATCATC TTCTTTCAAA TTCATAGCCT	600
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AACCATTTTG ACTAACCAAG ACAACATCAT CTAGTTTAAT CGGAGCCACT GCTACAATCT	720
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CATGGATTGG TCTGTAGATG ACATTTCCAA GACTTGTGAA CATCAAGAGG TGCTGGGTTG	1020
TCTTGGCAGA TTGAACAAAA ATCAAACGGT CATCATCAGC CTTGCCAATT TCTTCCAAGG	1080
TGGAAGCCGC AAAGGAACGT GGAAGGTGAC GCTTGATGTA ACCTGCCCTG GTCACGCTGA	1140

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CGTAGGTATC TTCCTCAGCG ATAAGACTAG CTGTATCAAT CTCAATTGCT TTCGCAGTGT	1200
CTTCTAAAGA ACTCAAACGA GGAGTTGCAA ATTTCTTCTT GACCTCACGA AGTTCTTTCT	1260
TCATGAGATT GTACATAGTC CTTTCATCAC CGATAATAGC CGCCAGCATA GCAATCTTCT	1320
CACGAAGCTC TGCTTCTTCT TCCTGCAAGA CAACCACATC GGTATTGGTC AAACGGTACA	1380
GTTGCAAAGT TACGATAGCC TCAGCCTGTT CTTCCGTAAA ATCATAGCTA ACTTTGAGGT	1440
TTTCCTTGGC GTCCGCCTTA TTCTCAGAAG CACGGATAAG AGCAATGACT TCATCCAAAA	1500
TCGAAATCAC ACGAATCAAA CCTTCGACGA TATGGAGACG TTTCTCAGCC TTTTCTTTGT	1560
CAAAGCGTGA ACGCGCCAAA ATCACTTCTC GACGGTGAGC GATATAGCTA GACAGGATTG	1620
GAACAATCCC AACCTGACGA GGTGTGAAAT TGTCAATCGC CACCATATTA AAGTTGTAGT	1680
TGATTTGTAG GTCGGTGAC TTAATAAGT AGTTGAGAAC AAGCTCAGTA TTAGCGTCTT	1740
TCTTAAGTTC GATAGCGATA CGAAGACCAT CACGGTCAGA CTCATCACGA ACCTCAGCAA	1800
TCCCAGCTAC CTTGTTATTA ACACGAACAT CATCGATTTT CTTGACTAGA TTGGCCTTAT	1860
TGATTTCATA AGGAATCTCA ATAATAACGA TTTGTTCTTT ACCACCTTTT AGCTTTTCAA	1920
TTTCAGTCTT GGAACGAACA ACCACGCGCC CTTTCCCAGT CTCATAAGCT TTCTTGATTT	1980
CATCAGGACC CTGAATAATA GCCCCTGTAG GGAAGTCTGG TCCAGGCAAG AATTCCATGA	2040
GTTTATCAAT CTTTGCAAGT GGGTGGTCAA TCATGTAAAC TGCAGCATCT ATGACCTCAG	2100
CTAAATTATG GGGAGGAATG TCTGTGGCAT AACCAGCCGA AATCCCAGTC GAACCATGA	2160
CCAAGAGGTT TGGAAAGGCT GCTGGCAAGA CCGTTGGTTC TTTCTCCGTA TCGTCAAAGT	2220
TCCATGCAAA AGGAACTGTC TTTTCTCGA TATCCTGAAG AAGGTAGCCT GCAATTTTCTAG	2280
ACAAACCTGC CTCAGTATAA CGCATAGCCG CAGGAGGATC TCCGTCCATA GAACCGTTAT	2340
TACCGTGAT TTCAACTAGA ATCTCAGAT TTTTCCAGTT CTGTGACATA CGAACCATGG	2400
CATCATAGAT AGAAGAATCC CCGTGTGGGT GGAAATTCCC CATGATGTTT CCGACTGACT	2460
TGGCCGACTT ACCGTAGCTC TTGTCAAAAG TATTGCTATC CTTATTGATA GAATAAAGAA	2520
TACGGCGCTG AACCGGCTTC AACCCATCAC GAATATCTGG CAAAGCCCGG TCTTGAATAA	2580
TGTACTTGGA GTAGCGACCA AAGCGCTCTC CCATGATGTC CTCCAGGGAC ATGTTTTGAA	2640
TGTTAGACAT AAGATACAAA GCCCATAAAA TACCAAGTGA AAATAGAAAA TTCTTGAAGT	2700
AAGCAAATC ACAAGAGAAT TTATCTTTT CACACAGTAT CTAGGGCGTG TTCAACTCCT	2760
TTCAAAGAAT GTAGAGTAGG TTTTATGCA GTAAAAGATA TTTTACGGGA ATTCTCCCCG	2820
TGTTCAAGTA CGATAAGTAA CCAAATATC CTGTTTGTAT TTTTCAATAT GAAAATCTGG	2880
TTTTCCAAAA TTAGTCTTAG TTTGTGTCTT AGCCGCTCCC TTAAGCGCCT CTTTGAGATA	2940

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AGCACTCATA GCAGATTCTT CATTAATAAT CCTGCAATTT TTTCAAACCA AGATTTTCAA	3000
ACTGCTTTT CACATAGTCA TTCACATCCG ACTCTAATTT CCAGTTTACT AACATATTAT	3060
TTTCTTTCAT TAAAACACTG TCGTTTCTTC TAGCGTAAAC TTGACATTAT CTTCAATCCA	3120
TTTACGGCGT GGTTCACCT TATCTCCCAT GAGAACATTG ACGCGGCGTT CGGCGCGCGC	3180
TAAATCTTCA ATTGTGACAC GGATGAGGGT ACGTGTTCCT GGGTTCATGG TTGTTTCCCA	3240
GAGCTGGTCC GCATTACCT CACCAAGTCC TTTGTATCGT TGGAGGGTAG CGCCTTTACC	3300
GAACTGTTTA CGGAGTTCTT CTAGTTCTCC GTCCGTCCAA GCGTAGGCCA CTTCTTCTTT	3360
CTTGCCTTTA CCTTTGGACA TCTTGTAAG AGGTGGGAGG GCAATATAGA CATGACCTGC	3420
CTCGACTAGC GGACGCATGT AACGGTAGAA AAATGTCAAG AGCAAGGTCT GGATATGGGC	3480
ACCGTCGGTA TCCGCATCGG TCATGATAAT GATCTTATCA TAGTTGGCAT CTTCAATAGA	3540
GAAGTCTGCT CCAACACCCG CACCAATGGT ATAAATCATG GTATTGATCT CTTCATTTTT	3600
GAGGATATCC GCCATCTTGG CCTTGGCTGT ATTGACAACC TTACCACGAA GAGGTAGAAT	3660
AGCCTGGAAC TTGCGGTCAC GACCTTGTTT GGCAGAACCA CCGGCAGAGT CCCCCTCAAC	3720
TAGATAGAGT TCATTCTTAG CAGGATTCTT AGATTGGGCT GGGGTCAATT TCCCAGACAA	3780
CAAGCCCTTA TCTTTCTTGT TTTTCTTCCC ATTTGCGCTC TCATCACGCG CTTTACGTGC	3840
TGCTTCACGA GCATCACGGG CCTTGATAGC CTGCGGATG AGGTTAGAAG CTAATTCCCC	3900
ATTTTCCATA AGGAAAAAGG TCAACTTATC AGCCACTATT CCATCCACAA CTGGGCGAGC	3960
TAGGGGGCTT CCTAGTTTAT CCTTGGTCTG TCCTTCAAAC TGCAAGTGT CTTCAGGAAC	4020
TAAGATAGAA AGAACGGCCG CTAGTCCCTC ACGATAGTCT GAACCTTCAA GGTTTTTATC	4080
TTTTTCCTTG AGAAGACCTG TTTTACGTGC ATAGTCATTC ATGACCTTGG TAATGGCAGA	4140
CTTGAGTCCT GTCTCGTGCG TTCCACCGTC CTTGGTGCGA ACGTTATTGA CAAAAGATAG	4200
AATGTTATCT GAGAATCCGT CATTGTACTG GAGGGCTACT TCCACTTGAA AACCATTGTC	4260
TTCCCCTTCA AAGTAAAGAA CTGGCGTCAA GATTTCTTGA TCTTCGTTGA GATAAGAAAC	4320
AAAATCTTGT ACTCCATTCT CATAGTGGAA CTCAATCGCT TCATTTGTTT GCTTGTCCTG	4380
TAAAGACAAG GTCACATTTT TCAAGAGAAA GGCTGATTCA TTAAGGCGCT CTGAAATGGT	4440
ATTGTAATTG AAATCTGTCT TAGAAAAATAT AGTCGCGTCA GGCATAAAAG TAACTTTGGT	4500
GCCTGTTTTA GACTTGGGTG CTGTACCGAT TTTCTTCAAA GTCGTGACAG GTTTTCCACC	4560
ATTTTCGAAA CGTTGCTTGT AAACCTGCGC ATCACGGGTA ATTTCAACTT CTAACCAGCT	4620
AGAAAGGGCG TTAACAACGG AAGAACCAC TCCGTGAAGT CCACCTGATG TCTTATAGCC	4680

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ACCTTGACCG AATTTCCCTC CGGCATGAAG AATCGTAAAG ATAACCTCAA CAGTTGGAAT 4740  
 TCCCATAGCG TGCATACcTG TCGGCATCCC ACGTCCATGG TCTTGAACCG TTAGACTACC 4800  
 GTCTTTATTG ATAGTTACAT CAATACGATC ACCAAACCCA GACAAGGCTT CATCGACTGC 4860  
 ATTATCAACG ATTTCCCAA CTAGGTGATG AAGACCAGCG CCATCGGTCTG ATCCAATATA 4920  
 CATCCCTGGA CGTTTTCGGA CCGCATCCAA CCCTTCTAGC ACCTGAATAG CATCATCATT 4980  
 ATAATTGTTA ATATTGATTT CCTTTTTTGA CACAAGGAAC CTCCTATTCTG TTCATCTTTA 5040  
 CTATTCTACA GGTTTTCCAA GGATTTTGCA AAATTTTCT TTCTCCGATG TGACAATTTT 5100  
 AGCAGAGATT CTCTGCTTTT CTTTCCCAAT TCATGATATA ATAGGAGTAT GATTACAATA 5160  
 GTTTTATTAA TCCTAGCCTA TCTGCTGGGT TCGATTCCAT CTGGTCTCTG GATTGGACAA 5220  
 GTATTCTTTC AAATCAATCT ACGCGAGCAT GGTTCGGTA ACACTGGAAC GACCAACACC 5280  
 TTCCGCATTT TAGGTAAGAA AGCTGGTATG GCAACCTTTG TGATTGACTT TTTCAAAGGA 5340  
 ACCCTAGCAA CGCTGCTTCC GATTATTTTT CATCTACAAG GCGTTTCTCC TCTCATCTTT 5400  
 GGACTTTTGG CTGTTATCGG CCATACCTTC CCTATCTTTG CAGGATTAA AGGTGGTAAG 5460  
 GCTGTGCGAA CCAGTGCTGG AGTGATTTTC GGATTTGCGC CTATCTTCTG TCTCTACCTT 5520  
 GCGATTATCT TCTTTGGAGC TCTCTATCTT GGCAGTATGA TTCACTGTC TAGTGTCA 5580  
 GCATCGATTG CGGCTGTTAT CGGGGTCTG CTCTTTCCAC TTTTGGTTT TATCCTGAGT 5640  
 AACTATGACT CTCTCTTCAT CGCTATTATC TTAGCACTTG CTAGTTTGAT TATCATTCGT 5700  
 CATAAGGACA ATATAGCTCG TATCAAAAAT AAACTGAAA ATTTGGTCCC TTGGGGATTG 5760  
 AACCTAACCC ATCAAGATCC TAAAAAATAA AATGCCAGTT CTGTACTGCC CCCAAACACT 5820  
 TAGACAAATA ATTTATCCAA AGGATTTAGT TCTGTACTGC ACAGGACTAA GTCCTTTTAG 5880  
 TTTTACCTTA ATTCGTTTGT TGTTGTAGTA ATCAATATAG TCTATAATGG CTTGTTCCAA 5940  
 TTGATTAAGT GATTTAAATG TTTTCTCATA GCCATAAAC ATTTGGGATT TTTAAATGCC 6000  
 AAAGAAAGAT TCCATCCTAC CGTTGTCTTG GCTGTTGCCC TTACGTGACA TGGATGCTTG 6060  
 AATTCCTTA CTCTCTAGGA ACCGATGATA AGAATCGTGT TGGTATTGCC AGCCTTGCTC 6120  
 ACTATGGAGA ATCGTATTCT CGTAGTGCTT CTCTGTGAAT GCCTGTTCCA A 6171

(2) INFORMATION FOR SEQ ID NO: 38:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 18475 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 38:

TATTACAAAT	AAAAAACCGG	AGGAGTGCTT	TATGAAAGCC	TATACTTATG	TTAAACCAGG	60
ACTTGCTTCT	TTTGTGTGATG	TAGACAAACC	AGTTATTTCGC	AAGCCAACAG	ACGCTATTGT	120
GCGTATTGTA	AAAACCACTA	TTTGTGGAAC	AGACCTCCAT	ATTATCAAAG	GGGATGTTCC	180
TACTTGCCAA	ACTGGTACCA	TTCTTGGCCA	CGAAGGGATT	GGGATTGTTG	AAGAAGTTGG	240
CGAAGGAGTT	TCCAAC TTCA	AAAAAGGTGA	CAAGGTCTTG	ATTTCTTGCG	TCTGTGCCTG	300
TGGTAAATGC	TACTACTGTA	AAAAAGGAAT	TTATGCTCAC	TGTGAAGACG	AAGGGGGCTG	360
GATTTTCGGT	CACTTGATTG	ATGGTATGCA	GGCTGAATAT	CTACGTGTCC	CTCATGCAGA	420
TAATACTCTT	TACCATACTC	CAGAAGACTT	GTCAGATGAA	GCTTTGGTTA	TGCTGTCAGA	480
CATTCTGCCT	ACTGGATATG	AAATTGGTGT	CTTAAAAGGG	AAAGTAGAAC	CTGGTTGCAG	540
CGTAGCCATT	ATTGGTTCAG	GTCCAGTTGG	ATTGGCTGCT	CTTTTAACAG	CCCAATTCTA	600
TTCACCAGCT	AAATTGATTA	TGGTAGACCT	AGACGATAAC	CGCTTGGAAA	CTGCCCTATC	660
ATTCCGTGCG	ACTCATAAGG	TTAATCTCTC	AGACCCTGAA	AAAGCCATTA	AAGAAATTTA	720
TGATTTGACA	GATGGTCCGT	GTGTGGATGT	CGCTATCGAA	GCTGTTGGTA	TTCTGCAAC	780
ATTTGATTTT	TGTCAAAAGA	TTATCGGTGT	AGACGGAACG	GTTGCCAACT	GTGGTGTGCA	840
TGGTAAACCA	GTTGAATTCG	ATTTAGATAA	ACTTTGGATT	CGCAACATCA	ATGTAACAAC	900
TGGTTTGGTA	TCTACAAATA	CGACTCCACA	ATTGTTGAAA	GCACTTGAAA	GTCATAAGAT	960
TGAACCGGAA	AAATTGGTAA	CTCACTATTT	CAAAC TCAGT	GAAATTGAAA	AAGCCTACGA	1020
AGTCTTCAGT	AAGGCAGCAG	ACCACCATGC	CATTAAGGTC	ATTATCGAAA	ACGATATCTC	1080
AGAAGCCTAA	GTAGTAAAAA	TATTTTTGTA	CATAAGTAAA	TAGAAATTCA	GTCATCCATC	1140
AGATGGCTGG	ATTTTTTATC	AAAAAATTAA	GAAATGAGCA	TATTTCTTTC	CTTGTCTGGC	1200
GGAATTGGTT	ATAATATACG	GTACAAAGGA	ATGAATGAAT	ATGTATCGTG	TTATAGAAAT	1260
GTACGGAGAT	TTTGAACCGT	GGTGGTTCTT	AGAAGGTTGG	GAAGAAGATA	TGTAGCAAG	1320
TAGAAAATTT	GACCAGTATT	ATGATGCTCT	CAAATACTAC	AAAAC TTGCT	GGTTTAGATT	1380
GGAAACAAGAA	TCGCCTCTTT	ATAAAAGTAG	AAGCGACTTG	ATGACCATTT	TTTGGGACCC	1440
GGAAGACCAA	CGCTGGTGTG	ATGAATGTGA	TGAGTATTTA	CAACAATACC	ATTCCTTGGC	1500
TCTTTTGCAG	GATGAGCAGG	TTATCCCAGA	CGAAAACTA	CGCTCAGGCT	ATGAAAAACA	1560
AACCAGTCAG	GAAAGGAATC	GTTCTTGCCG	TATGAAATTA	AAATAGAGAA	AAGTAACTTT	1620
TTTGAGTTG	CTTTTTTTAT	TTTTCTAACT	CTTTGCGAAT	AGTATAGGTG	AGGAGGTAAG	1680

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TATGGTTCAA	GAAATGTCAC	AAGAAATCAT	TCGTTTCAGCT	CGGAAAAAAG	GGACGCAGGA	1740
TATCTATTTT	GTCCCTAAGT	TAGACGCCTA	TGAGCTTCAT	ATGAGGGTAG	GAGACGAGCG	1800
CTGTAAAATT	GGTAGCTATG	ATTTTGAAAA	GTTTGCAGCC	GTTATCAGTC	ACTTTAAGTT	1860
TGTGGCGGGT	ATGAATGTGG	GAGAAAAAAG	ACGTAGTCAA	CTGGGTTTCT	GTGATTATGC	1920
CTATGACCAT	AAGATAGCGT	CTCTACGTTT	ATCTACTGTA	GGCGATTATC	GGGGGCATGA	1980
GAGTTTGTTT	ATCCGTTTGT	TGCACGATGA	GGAGCAGGAC	CTGCATTTTT	GGTTTCAGGA	2040
TATTGAAGAA	TTAGGCAAGC	AGTACAGGCA	ACGGGGACTC	TATCTTTTTG	CTGGTCCGGT	2100
TGGGAGTGGT	AAGACGACCT	TGATGCATGA	ATTGTCCAAG	TCACTCTTTA	AAGGACAGCA	2160
AGTTATGTCC	ATCGAAGATC	CTGTCGAAAT	CAAGCAGGAC	GACATGCTTC	AGTTGCAGTT	2220
GAACGAAGCA	ATCGGCCTAA	CCTATGAAAA	TCTAATCAAA	CTTTCCTTGC	GTCAATCGACC	2280
AGATCTCTTG	ATTATCGGAG	AAATTCGTGA	CAGCGAGACG	GCGCGTGCAG	TGGTCAGAGC	2340
TAGTTTGACA	GGTGGCAGAC	TCTTTTCAAC	CATTACGCC	AAGAGTATCC	GAGGTGTTTA	2400
TGACCGTCTG	CTGGAGTTGG	GTGTGAGTGA	AGAAGAATTG	GCAGTTGTTT	TGCAAGGAGT	2460
CTGCTACCAG	AGATTAATCG	GGGAGGAGG	AATCGTTGAC	TTTGCAAGCA	GAGATTATCA	2520
AGAACACCAA	GCAGCCAAGT	GGAATGAGCA	AATTGACCAG	CTTCTTAAAG	ATGGACATAT	2580
CACAAGTCTT	CAGGCTGAGA	CGGAAAAAAT	TAGCTACAGC	TAAGCAAAAA	AATATCATCA	2640
CCCTATTTAA	CAATCTCTTT	TCTAGCGGTT	TTCATCTGGT	GGAGACTATC	TCCTTTTTAG	2700
ATAGGAGTGC	TTTGTGGAC	AAGCAGTGTG	TGACCCAGAT	GCGTGTGGGC	TTGTCTCAGG	2760
GGAAATCATT	CTCAGAAATG	ATGGAAAGTT	TGGGATGTTT	AAGTGCTATT	GTCACCTCAGT	2820
TATCCCTAGC	TGAAGTTCAT	GGCAATCTCC	ACCTGAGTTT	GGGAAAGATA	GAAGAATATC	2880
TGGACAATCT	GGCTAAGGTC	AAGAAAAAAT	TGATTGAAGT	AGCGACCTAT	CCCTTGATTT	2940
TGCTGGGTTT	TCTTCTCTTA	ATTATGCTGG	GGCTACGGAA	TTACCTGCTC	CCACAACCTG	3000
ATAGTAGCAA	TATTGCCACC	CAAATTATCG	GTAATCTGCC	CCAAATTTTT	CTAGGCATGG	3060
TAGGGCTTGT	TTCCGTGCTT	GCCCTTTTAG	CACTCACTTT	TTATAAAAGA	AGTTCTAAGA	3120
TGAGTGTCTT	TTCTATCTTA	GCACGCCTTC	CCTTTATTGG	AATCTTTGTG	CAGACCTACT	3180
TGACAGCCTA	TTATGCACGT	GAATGGGGGA	ATATGATTTT	ACAGGGAATG	GAGTTGACGC	3240
AGATTTTTCA	AATGATGCAG	GAACAAGGTT	CCCAGCTCTT	TAAAGAAGTC	GGTCAAGATC	3300
TGGCTCAAAC	CCTGAAAAAT	GGCCGTGAAT	TTTCTCAGAC	GATAGGAACC	TATCCTTTCT	3360
TTAGGAAGGA	ATTGAGTCTC	ATCATAGAGT	ATGGGGAAGT	TAAGTCCAAG	CTGGGTAGTG	3420
AGTTGGAAAT	CTATGCTGAA	AAAACCTGGG	AAGCCTTTTT	TACCCGAGTC	AACCGCACCA	3480

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TGAATTTGGT GCAGCCACTG GTTTTATCT TTGTGGCACT GATTATCGTT TTA	3540
CGGCAATGCT CATGCCCATG TATCAAATA TGGAGGTAAA TTTTAAAT GAAAAAATG	3600
ATGACATTCT TGA AAAAGC TAAGGTAAA GCTTTTACAT TGGTGGAGAT GTTGGTGGTC	3660
TTGCTGATTA TCAGCGTGCT TTTCTTGCTC TTTGTACCTA ATCTGACCAA GCAAAAAGAA	3720
GCAGTCAATG ACAAAGGAAA AGCAGCTGTT GTTAAGGTGG TGGAAAGCCA GGCAGA	3780
TATAGCTTAG AAAAGAATGA AGATGCTAGC CTAAGAAAGT TACAAGCAGA TGGACGCATC	3840
ACGGAAGAAC AGGCTAAAGC TTATAAGAA TACAATGATA AAAATGGAGG AGCAATCGT	3900
AAAGTCAATG ATTAAGGCCT TTACCATGCT GGAAAGTCTC TTGGTTTTGG GACTTGTGAG	3960
TATCCTTGCC TTGGGCTTGT CCGGCTCTGT CCAGTCCACT TTTTCAGCGG TAGAGGAACA	4020
GATTTCTTT ATGGAGTTTG AAGAACTCTA TCGGGAAACC CAAAAACGCA GTGTAGCCAG	4080
TCAGCAAAAG ACTAGTCTGA ACTTAGATGG GCAGACGCTT AGCAATGGCA GTCAAAAGTT	4140
GCCAGTCCCT AAAGGAATTC AGGCCCCATC AGGCCAAAGT ATTACATTTG ACCGAGCTGG	4200
GGGCAATTCG TCCCTGGCTA AGGTTGAATT TCAGACCAGT AAAGGAGCGA TTCGCTATCA	4260
ATTATATCTA GGAAATGGAA AAATTAACG CATTAAAGGAA AAAAAAATT AGGGCAGTGA	4320
TTTTACTGGA AGCAGTAGTC GCTCTAGCTA TCTTTGCCAG CATTGCCACC CTCCTTTTGG	4380
GACAAATCA AAAAAATAGG CAAGAGGAAG CAAAAATCTT GCAAAAGGAA GAAGTCTTGA	4440
GGGTAGCTAA GATGGCCCTG CAGACGGGGC AAAATCAGGT AAGCATCAAC GGAGTTGAGA	4500
TTCAGGTATT TTCTAGTGAA AAAGGATTGG AGGTCTACCA TGGTTCAGAA CAGTTGTTGG	4560
CAATCAAAGA GCCATAAGGT CAAGGCTTTT ACCTTGTTAG AATCCCTGCT TGCCCTCATT	4620
GTCATCAGTG GGGGATTACT CCTTTTCAA GCTATGAGTC AGCTCCTCAT TTCAGAA	4680
CGCTACCAGC AACAAAGCGA GCAAAAGGAG TGGCTCTTGT TTGTGGACCA ACTTGAGGTA	4740
GAATTAGACC GTTCGCAGTT CGAAAAAGTA GAAGGCAATC GCCTATACAT GAAGCAAGAT	4800
GGCAAGGACA TCGCCATCGG TAAGTCAAAG TCAGATGATT TCCGTAAAAC GAATGCTCGT	4860
GGTCGAGGTT ATCAGCCTAT GGTTTATGGA CTCAAATCTG TACGGATTAC AGAGGACAAT	4920
CAACTGGTTC GCTTTCATTT CCAGTTCCAA AAAGGCTTAG AAAGGGAGTT CATCTATCGT	4980
GTGGAAAAAG AAAAAAGTTA AGGCAGGTGT TCTCCTCTAC GCAGTCACCA TAGCAGCCAT	5040
CTTTAGTCTT TTGTTGCAAT TTTATTTGAA CCGACAAGTC GCCCCTATC AAGACTATGC	5100
TTTGAATAAA GAAAAATTGG TTGCTTTTGC TATGGCTAAA CGAACCAGG ATAAGGTTGA	5160
GCAAGAAAGT GGGGAACAGT TTTTAACTCT AGGTCAGGTA AGCTATCAAA ACAAGAAAC	5220



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TGGCTTAGTG	ACGAGGGTTC	GTACGGATAA	GAGCCAATAT	GAGTTTCTGT	TTCTTCAGT	5280
CAAAATCAAA	GAAGAGAAAA	GAGATAAAAA	GGAAGAGGTA	GCGACCGATT	CAAGCGAAAA	5340
AGTGGAGAAG	AAAAAATCAG	AAGAGAAGCC	TGAAAAGAAA	GAGAATTCAT	AGTCAATTCA	5400
ACTATAATGC	GTTGAATCCA	GAATAGTCCA	CTGTAGTTTC	TAGAAAATTG	CTGGAAATGG	5460
ATGTTAAGCT	CCAATTCATT	TGTTTATATC	TTATTTTCAGT	TTACTATACT	TTGTGCTAAA	5520
TTAAAGATAT	GAAACATGAT	TTTAACCACA	AAGCAGAAAC	TTTCGATTCC	CCTAAAAATA	5580
TCTTCCTCGC	AAACTTGGTA	TGTCAAGCAG	CCGAGAAACA	GATTGATCTT	CTATCAGACA	5640
AAGAAATTTT	AGATTTCGGT	GGTGGCACGG	GTCTATTAGC	CTTGCCCTTA	ACCCCTAGCC	5700
AAGCAGGCTA	AGTCAGTCAC	TCTTGTAGAC	ATTTCTGAGA	AAATGTTGGA	GCAAGCTCGT	5760
TTGAAAGTGG	AGCAGCAAGC	AATCAAGAAT	ATCCAGTTTT	TGGAGCAAGA	TTTACCGAAA	5820
AATCCCTTGG	AGAAAGAGTT	TGATTGCCTT	GCTGTTAGTC	GGGTTCTTCA	TCATATGCCT	5880
GATTTGGATG	CGGCTCTCTC	ACTGTTTCAT	CAACATTTGA	AGGAAGATGG	GAAACTCATC	5940
ATTGCTGATT	TTACCAAGAC	AGAAGCTAAT	CATCATGGAT	TTGATTTAGC	TGAAGTGGAA	6000
AACAAGCTAA	TTGAGCATGG	TTTTTCATCT	GTGCATAGTC	AGATTCTCTA	TAGTGCTGAA	6060
GACCTGTTTC	AAGGAAATCA	CTCAGAATTC	TTTTTAATAG	TAGCCCAAAA	ATCACTCGCC	6120
TAGTCAGGGA	GTGATTTTTT	TATAAGGATG	GAAAAAAGAA	GGGAAATTTG	GTAAGATAGG	6180
AATATGGATT	TTGAAAAAAT	TGAACAAGCT	TATACCTATT	TACTAGAGAA	TGTCCAAGTC	6240
ATCCAAAGTG	ATTTGGCGAC	CAACTTTTAT	GACGCCTTGG	TGGAGCAAAA	TAGCATCTAT	6300
CTGGATGGTG	AAACTGAGCT	AAACCAGGTC	AAGGAGAACA	ATCAAACCCCT	TAAGCGTTTA	6360
GCACTACGCA	AAGAAGAATG	GCTCAAGACC	TACCAGTTTC	TCTTGATGAA	GGCTGGGCAA	6420
ACAGAACCCT	TGCAGGCCAA	TCACCAGTTT	ACACCGGATG	CTATTGCTTT	GCTTTTGGTG	6480
TTTATTGTGG	AAGAGTTGTT	TAAAGAGGAG	GAAATTACTA	TCCTCGAAAT	GGGTTCTGGG	6540
ATGGGAATTC	TAGCGGCTAT	TTTCTTGACC	TCGCTTACTA	AAAAGGTGGA	TTACTTGGGA	6600
ATGGAAGTGG	ATGATTTGCT	GATTGATCTG	GCAGCTAGCA	TGGCAGATGT	AATTGGTTTG	6660
CAGGCTGGCT	TTGTCCAAGG	AGATGCCGTT	CGCCACAAA	TGCTCAAAGA	AAGCGATGTG	6720
GTCATCAGTG	ACTTGCCTGT	CGGCTATTAT	CCTGATGATG	CCGTTGCGTC	GCGCCATCAA	6780
GTTGCTTCTA	GCCAAGAACA	TACTTACGCC	CATCACTTGC	TCATGGAACA	AGGGCTTAAG	6840
TACCTCAAGT	CAGACGGATA	CGCTATTTTT	CTAGCTCCGA	GTGATTTGTT	GACCACTCCT	6900
CAAAGTGATT	TGTTAAAAGA	ATGGCTGAAA	GAAGAGGCGA	GTCTGGTTGC	TATGATTAGT	6960
CTGCCTGAAA	ATCTCTTTGC	TAATGCCAAA	CAATCTAAGA	CTATTTTTAT	CTTACAGAAG	7020

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AAAAATGAAA TAGCAGTAGA GCCTTTTGT TATCCACTTG CTAGCTTGCA AGATGCAAGT	7080
GTTTTAATGA AATTTAAAGA AAATTTTCAA AAATGGACTC AAGGTACTGA AATATAAAAT	7140
AGATTTTGTT ATAATAGTTG AAAACGCTTA AAAAGGGGTA TCATGTTATG AAAAAACAA	7200
TTGCAATCAA TGCAGGAAGT TCAAGTTTGA AATGGCAATT ATACTTAATG CCAGAAGAAA	7260
AAGTATTGGC GAAAGGTTTG ATTGAACGTA TCGGTTTGAA AGATTCAATT TCAACTGTAA	7320
AATTTGACGG CCGTTCTGAA CAACAAATTT TGGATATTGA AAATCATATA CAAGCCGTTA	7380
AAATTTTATT GGATGACTTG ATTCGTTTCG ATATTATCAA GGCTTATGAC GAGATTACAG	7440
GTGTTGGACA TCGTGTGTG GCTGGTGGAG AATATTTCAA AGAATCAACA GTTGTGAGG	7500
GAGATGTTTT AGAAAAAGTT GAAGAGTTGA GTTGTGTTGC TCCTCTACAC AACCCGGCCA	7560
ATGCAGCAGG TGTTTCGTGCC TTCAAGGAAT TGTGTCAGCA CATTACCAGT GTAGTTGTTT	7620
TTGATACTTC CTTCCACACA AGTATGCCAG AGAAAGCTTA TCGCTACCCT CTACCAACAA	7680
AATATTACAC AGAAAAACAAG GTTCGTAAAT ACGGTGCTCA TGGTACAAGT CACCAGTTTG	7740
TAGCAGGAGA AGCTGCAAAA CTCTTGGGAC GTCCATTAGA AGACTTGAAG TTAATTACCT	7800
GTCATATTGG TAACGGAGGC TCAATTACAG CTGTGAAAGC CGGCAAATCT GTAGACACTT	7860
CTATGGGGTT CACTCCTCTT GGTGGTATTA TGATGGGAAC GCGTACAGGG GATATTGATC	7920
CAGCTATCAT TCCTTATTTA ATGCAATATA CAGAGGATTT TAACACACCA GAAGATATCA	7980
GTGCTGTTCT TAACCGTGAA TCAGGTCTTT TGGGAGTTTC TGCTAATTCT AGCGATATGC	8040
GCGATATAGA AGCAGCTGTA GCAGAAGGA ATCAGCAGGC TAGCTTGGCT TATGAAATGT	8100
ATGTTGACCG TATCCAAAAA CATATCGGTC AGTACCTTGC AGTGCTAAAT GGAGCAGATG	8160
CCATTGTTTT CACAGCAGGT GTCGGTGAAA ATGCAGAGAG TTTCCGTCGT GATGTAATCT	8220
CAGGGATTTC GTGGTTTGGT TGTGATGTTG ATGATGAAAA GAATGTCTTT GCGGTACAG	8280
GAGACATCTC AACAGAGGCA GCTAAAAATCC GTGTCTTGGT TATTCCAACA GATGAAGAAT	8340
TAGTCATTGC CCGTGACGTT GAACGCTTGA AAAAAATAAGT GAAACTAAAA AAATATTCAA	8400
TACAAGGAGT TGGGAAAGTT ATTTTCCAG CTTCCTTTTC TGATGAAATT GTCCAAAACC	8460
TTGCTATGAT TGGCTTTTTT GAAAAATATG GTATAATAGT AGTAATTTAA TAGATGGAGT	8520
TGAGTTTGA AGAAAAACTT TCGTGAAAA AGAGAGAAAG ATTTTAAGGC GATTTTCAAG	8580
GAGGGGACAA GTTTTGCTAA TCGCAAATTT GTGGTCTACC AATTAGAAAA CCAGAAAAAC	8640
CGTTTTGAG TAGGTCTATC AGTTAGCAAA AAAGTGGGGA ATGCCGTCAC TAGAAATCAA	8700
ATTAAGCGAC GGATTGCGCA TATTATCCAG AATGCAAAAG GGAGTCTGGT AGAAGATGTC	8760

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GAAACTAAAG TTGACTAGTT TGCTAGGACT GTCTCTGTTA ATCATGACAG CCTGTGCGAC	8940
TAATGGGGTA ACTAGCGATA TTACAGCCGA ATCGGCTGAT TTTTGGAGTA AATTGGTTTA	9000
CTTCTTTGCG GAAATCATTG GCTTTTATC GTTTGATATT AGTATCGGAG TGGGGATTAT	9060
TCTCTTTACG GTCTTGATTG GTACAGTCCT CTTGCCAGTC TTTCAGGTGC AAATGGTGGC	9120
TTCTAGGAAA ATGCAGGAAG CTCAGCCACG CATTAAAGGCG CTTCGAGAAC AATATCCAGG	9180
TCGAGATATG GAAAGCAGAA CCAAAGTAGA GCAGGAAATG CGTAAAGTAT TTAAGAAAT	9240
GGGTGTCAGA CAGTCAGACT CTCTTTGGCC GATTTTGATT CAGATGCCGG TTATTTTGGC	9300
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CCTTGGTAGT GTGGATACAA CCCTTGTCT TCCGATTTTA GCAGCAGTAT TCACCTTTTT	9420
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GTATGGGATT CCAGTCTTGA TTTTATCTT TGCAGTTTAT GCGCCAGGTG GAGTCGCCCT	9540
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TTATCTTTAC AACCGCTATT CCAGAACCCT CTACGTTACA ATCAATGTCA ATGATTATGT	10500
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GAGGTTAAAC TGATGTTGAA TAAGATAAGA GACTATTTAG ACTTTGCTGG TTGTCAGTAC	10800
CGTAATCCTG ATAAAGCGGG AGCAGAGCGA GAGAAGATGC TGGCATTCCG CCACAAAGGA	10860
CAAGAGGCCC GAAAGGTTTT TACAGAACTG GCCAAAGCCT TTCAAGCAAG CCATCCAGAA	10920
TGGCAACTCC AACAGACTAG CCAGTGGATG AATCAGGCCC AGCGTTTGAG ACCACATTTT	10980
TGGGTTTATC TACAGAGAGA CGGACAAGTG ACAGAACCTA TGATGGCCTT ACGTTTGTAT	11040
GGGACATCTA CTGACTTTGG AATTCTTTG GAAGTCAGTT TCATCGAACG TAAGAAGGAT	11100
GAGCAAACAC TGGGCAAGCA GGCCAAAGTT TTAGACATTC CAACCGTTAA AGGGATTTAT	11160
TATCTAACCT ACTCTAATGG TCAAAGTCAA CGGTGGGAGG CGAATGAAGA AAAGCGTCGT	11220
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CCTATGACAG AAAATTCGTC TGAAGAAGAA ATCGTAGAAG GCTTATTGAA GTCTTATTCT	11340
AAAATCTTTC CCTATTATCT AGCTACGAGA AAATAAGATA ATTTGTAAAA CATCATAAAT	11400
CATACAGTCC AAGAGTGAAC AGTCCGCTGT GTAATCTTTC GTCTTTTGTG TTGCGCTTTC	11460
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GGCAACTCAA CGCTTGACTG GTGGTGGCGG ATTTGCGATT GGTCAACCAAC AGCAATTTGC	12120
AATCTGGTTT GTAGATAAAG TAGCAGGACG CTTTGGTAAG AAAGAAGAAA GTTTAGACAA	12180
TCTTAAATTA CCTAAGTCC TCTCAATCTT CCACGATACA GTTGTGTCAT CTGCTACCTT	12240
GATGCTCGTA TTCTTCGGAG CCATTCTTTT AATCTTGGGT CCAGACATTA TGTCTAATAA	12300

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AGAAGTCATC ACTTCAGGAA CTCTATTCAA TCCTGCTAAA CAAGATTTCT TTATGTACAT	12360
TATCCAAACA GCCTTTACCT TCTCAGTTTA CTTGTTGTTT TTGATGCAAG GTGTCCGAAT	12420
GTTCTGATCT GAGTTGACAA ACGCCTTCCA AGGTATTTC AACAATTGT TGCCAGGTTT	12480
ATTCCCAGCG GTTGACGTTG CAGCTTCTTA TGGATTGGT TCTCCAAATG CTGTCTTGTC	12540
AGGATTTACC TTTGGTTTGA TTGGTCAATT GATTACAATT GTTTGTCTCA TCGTCTTTAA	12600
AAATCCGATT CTTATTATTA CAGGATTGT ACCAGTGTTC TTGACAATG CAGCCATTGC	12660
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TGTCCTTCAA GTTGCTCTAG GAGCTCTTTG TGTGGCCCTT CTCGATTGG CATCTTATGG	12780
TGGCTACCAT GGAAATATCG ACTTTGAATT CCCATGGCTT GGATTGGAT ATATCTTCAA	12840
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AGTGTAGCCA TTCCACAAAT TATTGCCCTA TTTGAATTAG AAGATTCTAT TGCACGTTTA	13740
CAGGCTTGCC AGACTAAAGA AGATGTCTTG GCTATGATTG AAGAACTAA GGATAGCCCT	13800
TATCTCGAAG GATTGGATTG GGAAAGTTAG AAAGAGGAAT AAAGAAATGA CAAAAAGAAT	13860
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AAGTGAAGT GCTGAAGTCT TGCCTAGCCT TTTCCAGAT AAGATTATTG TGGCAGACAC	14040
AAAATGTGCT GATGCTGGTG GAACAGTTGC TAAAAATAAT GCGGTTCTGT GAGCAGACTG	14100

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GATGACTTGT ATCTGTTGTG CAACCATCCC TACTATGGAA GCAGCTCTAA AGGCTATCAA	14160
GA CTGAACGA GGAGAACGAG GCGAAATCCA GATCGAGCTT TATGGCGATT GGACTTTTGA	14220
ACAAGCTCAG CTTTGGCTAG ATGCAGGTAT CTCACAAGCT ATTTATCACC AATCTCGTGA	14280
TGCTCTTCTT GCTGGTGAAA CTTGGGGTGA AAAAGACCTT AATAAGGTGA AAAAACTCAT	14340
TGACATGGGC TTCCGTGTAT CTGTAACAGG TGGTCTAGAT GTAGATACTC TCAAACCTCTT	14400
TGAAGGTATT GATGTCTTTA CCTTTATCGC AGGTCGTGGA ATTACAGAGG CTGTGGATCC	14460
AGCAGGAGCA GCGCGTGCCT TCAAGGATGA AATCAAACGA ATTTGGGGGT AAATCATGGT	14520
ACGTCCAATT GGAATTTATG AAAAGGCAAC CCCAACACAC TGTACTTGCC TAGAACGTTT	14580
AAATTTTGCC AAGGAGTTAG GCTTTGATTT TGTGAGATG TCTATTGACG AACGTGACGA	14640
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TGAAGAAGCT CAGGTGGTAC TTGCTATTGA AATTATGGAT GATCCTTTCA TCAGTAGCAT	15000
CGAAAAATAT TTGGCTATAG AAAAAGAGAT TGA CTCTCCC TTCCTCTTTG TATATCCAGA	15060
TATTGGTAAT GTGTCTGCAT GGCATAATGA TATCTATAGT GAGTTTTATC TTGGTCATCA	15120
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TGACCAAGGA CGAAGTAGAA GTGGCCTATG AAAAAAGATC TGGCCTGGTT ATCGTAGAAG	15840

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AGTTTGAACA TCGCGGACTT AACCCGGTTG AAGTACCAGG AATTGTTGTA CGCAATCAGC	15900
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AGTACATACT AGAAAAACAC TACCAACGTA AACATGGACC AAATGCTTAT TATGGTCAAA	16080
AGTAAGAACC ATGAAGGAGG AGAAAAAGAT AAATTTAGCT CCTCTTTTTA CATTTGATTT	16140
TTATTGAGAG TAAAGTTGGA GTTGAAGTAA TTTTAAAGA TTTTITAGAA ATAGCGCTTG	16200
ATATATATAT GGTAAATATA AAAGAATTGC TGTGATATCA ATAGATTGTT GGGATTTTTT	16260
AATATGGTAC TGGATAAGGC AAGTTGTGAT TTGCTTCAAT ATTTGATGGA TCAAGAAACG	16320
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CACATTGACA AAATCAATGC TGCTCTGGGT GACGAGGCGC TTCACATCAT TAGTATTCCA	16440
CGAATTGGTA TTCACTTAAC GGAAGAGCAG AGAGATGCTT GTTGTAAGT ATTATCGGAA	16500
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GAAATGAACC AATTTTTTAA GGAACAGGTT CCTTTAGTTG AACAAGATTT AGGGAAGAAA	16920
ATAAACCATC ATGAAATAAC TTTTATGTTG CAGGTTCTAC CTTATTTGCT GTTAAGCTGT	16980
CATAATGTTG AACAGTATCA AGAAAGACAT CAGGATATAG AGAAAGAATT TTCTTTGATA	17040
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GAATTTATCT GGTATTTTGA ATCACAAATC CGAATGGAGA TTGAGAACAA GGATGATTTG	17280
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TCTAAAAATC CTCTAACAAA ACAAATTCGA TCCAAGTATG GAGAATTATT TTTAGTCACT	17400
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AAGAGTGTGG AAGATATTGC ACAAGTTGAT GTAGTGATTA CTACTAATGA TGATTTGGAT	17700
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CTAGACTATC TTAAACACAA TATATTTCGT AATAAGAGCA AAAGTTTCAG TGAAAATCTT	17820
TCTAGTCTTA TTTCGTCTTA TATTGTAGAC AGCAAGTTGG CTAGTAAGTT CCAAGAAGAG	17880
GTTCAAACAC TTATAAATCA AGAAATAGTA GTTCAAGCTT TTTTGAAGT TATTTGAAGG	17940
ACAGTCCAAT GATGAACACA AACCTGTGTC TTTCGTAGTG TTTTGAAGGG	18000
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AACGAAGAAA TCGAAGAAGA AGTCGTACCT GAAGGCAACT TTGCCATGTG GTGGCTAGGC	18180
AACTGTGGTA CTTGGATTAA GACACCAGCT GGTGCTAAGC TTGTCATGGA CCTTTGGTCA	18240
AACCGTGGAA AATCAACCAA AAAAGTGAAA GATATGGTTC GTGGGCACCA AATGGCAAAT	18300
ATGGCAGGTG TTCGTAAGCT GCAACCAAAC TTGCGTGTTC AGCCAATGGT TATCGATCCA	18360
TTTGCTATCA ACGAACTAGA CTATTACTTA GTTTCACACT TCCACAGTGA TCATATCGAC	18420
CCATACACAG CTGCAGCAAT TCTCAATAAT CCTAAGTTAG AGCATGTTAA GTTGG	18475

(2) INFORMATION FOR SEQ ID NO: 39:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 7186 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 39:

CCAGGATTTG GTACCGTTGC AAGTGGTGTG CCTTTCCTCC TAAAGGAAAA TGGAGGAAAA	50
ATCAATCAAT CAGCACATTC AGATATCAAA GTTGCTAAGG TATTGGTCAA GGATGAAGAT	120
GAAAAAATC GCTTGCTTGC AGCAGGGAAT GACTTTAACT TTGTAACCAA TGTGGATGAT	180
ATTTTATCAG ACCAGGATAT TACTATCGTA GTGGAATTGA TGGGGCGTAT TGAGCCTGCT	240
AAAACCTTTA TCACTCGTGC CTTGGAAGCT GGAAAACACG TTGTTACTGC TAACAAGGAC	300
CTTTTAGCTG TCCATGGCGC AGAATTGCTA GAAATCGCTC AAGCTAACAA GGTAGCACTT	360
TACTACGAAG CAGCAGTTGC TGGTGGGATT CCAATTCTTC GTACTTTAGC AAATTCCTTG	420
GCTTCTGATA AAATTACGCG CGTGCTTGGA GTAGTCAACG GAACTTCCAA CTTTCATGGTG	480
ACCAAGATGG TGAAGAAGG CTGGTCTTAC GATGATGCTC TTCCGGAAGC ACAACGTCTA	540



386

GGATTTGCAG AAAGCGATCC GACGAATGAC GTAGATGGGA TTGATGCAGC CTACAAGATG	600
GTTATTTTGA GCCAATTTGC CTTTGGCATG AAGATTGCCT TTGATGATGT AGCCCAACAG	660
GGAATCCGCA ATATCACACC AGAAGACGTA GCTGTAGCTC AAGAGCTTGG TTACGTAGTG	720
AAATTGGTTG GTTCTATTGA GGAACTTCT TCAGGTATTG CTGCAGAAGT GACTCCAACC	780
TTCTACCTA AAGCGACCC ACTTGCTAGT GTGAATGGCG TATGAACGC TGTCTTGTGA	840
GAATCTATCG GTATTGGTGA GTCTATGTAC TACGGACCAG GTGCGGTCA AAAACCAACT	900
GCAACAAGTG TTGTAGCTGA TATTGTCCGT ATCGTTCGTC GTTTGAATGA TGGTACTATT	960
GGCAAAGACT TCAACGAATA TAGCCGTGAC TTGCTCTGG CAAATCCTGA AGATGTCAAA	1020
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GAAATCTTCA ATGCTCAAGA TATTTCTTTT AAGCAAATCC TTCAAGATGG CAAAGAGGGT	1140
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CAACCAACTG GGTCAACTCA ACTTATCAGA CCATGAAAAA TTGCAGTTAG CGACCAAGAT	1620
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TCAGGACTTG GTAAGAGAAT TTGCGATGAT TAAGCAAGTG ACCAAAGAAA ATGGGGCCTA	1980
TGCAACCTAC CTTTCTGGTG CTGGCCGAC AGTTATGGTT CTGCCTTCTC ATGACAAGAT	2040
GCCAACAATT AAGGCAGAAT TGGAAAAGCA ACCTTTCAAA GGAAACTGC ATGACTTGAG	2100
AGTTGATACC CAAGGTGTCC GTGTAGAAGC AAAATAAAGA ATAGAAGATA GGATGGGGAA	2160
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CAAAGAGCAA ACTAGGAAGC TAGCCGCAGG CTGCTCAAAA CAGTGTTTTG AGGTTGCAGA	2280
TAGAACTGAC GAAGTCAGCT CAAGACACTG TTTTGAGGTT GCAGATAGAA CTGACGAAGT	2340

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CAGTAACCAT ACTACGGTAA GGTGACGCTG ACGTGGTTTG AAGAGATTTT CGAAGAGTAT	2400
TAGTTAAAAA CGTGATAAAG GAGAAATAAA GATGGCAGAA ATTTATCTAG CAGGTGGTTG	2460
TTTTTGGGGC CTAGAGGAAT ATTTTTCACG CATTTCTGGA GTGCTAGAAA CCAGTGTGG	2520
CTACGCTAAT GGTCAAGTCG AAACGACCAA TTACCAGTTG CTCAAGGAAA CAGACCATGC	2580
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CCCCTTGTTT AAGCTGTTAG AAGCTGTTTT TGAGCTCTTG GTTCCCATGG TGATTGCTGG	3540
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GCTCCTTATC TTTGCAGTAA TTGGCGTTTT AGTGGCCTTG ATAGCTCAAT TTTACTCAGC	3660
AAAGGCAGCA GTAGGTTCTG CTAAGGAATT GACAAACGAT CTTTATCGTC ATATTCTTTC	3720
CTTGCCCAAG GACAGCAGAG ACCGTCTGAC AACTTCTAGT TTGGTCACTC GCTTGACTTC	3780
GGATACCTAC CAGATTCAGA CTGGTATCAA TCAATTCCTG CGTCTCTTTT TACGAGCGCC	3840
CATTATCGTT TTTGGTGCCA TTTTATGGC TTATCGAATC TCAGCTGAGT TGACTTTCTG	3900
GTTCTTAGTC TTGGTTGCCA TTTTGACCAT TGTCATTGTA GGGTTATCTC GATTGGTCAA	3960
TCCTTTCTAC AGTAGTCTCA GAAAGAAAAC GGACCAACTG GTTCAGGAAA CGCGCCAGCA	4020
ATTGCAAGGG ATGCGGGTTA TTCGTGCTTT TGGTCAAGAA AAACGAGAGT TACAGATTTT	4080

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TCAAACCCCTT AACCAAGTTT ATGCTAGATT ACAAGAAAAG ACAGGTTTCT GGTCTAGTTT	4140
ATTAACACCT CTGACCTATC TGATTGTCAA TGGAACTCTT CTCGTTATTA TCTGGCAAGG	4200
CTATATTTCA ATTCAAGGAG GAGTGCTCAG TCAAGGTGCT CTCATTGCTC TTATCAATTA	4260
CCTCTTACAG ATTTTGGTGG AATTGGTCAA GCTAGCCATG TTGATCAATT CCTCAACCA	4320
GTCCTATATC TCAGTCAAGC GAATCGAGGA AGTCTTTGTT GAGGCTCCAG AGGATATCCA	4380
TTCAGAGTTA GAACAAAAGC AAGCTACCAG AGATAAGGTT TTACAAGTCC AAGAATTGAC	4440
CTTTACCTAT CCTGATGCGG CCCAGCCTTC TCTGAGATAC ATTTCTTTTG ATATGACTCA	4500
AGGACAAATT CTAGGTATCA TCGGGGGAAC TGGTTCTGGT AAATCAAGCT TGGTGCAACT	4560
CTTACTTGGA CTTTATCCAG TAGACAAGGG GAACATTGAC CTTTATCAAA ATGGACGTAG	4620
TCCTCTTAAT TTGGAGCAGT GCGGGTCTTG GATTGCCTAT GTACCTCAAA AGGTGCAACT	4680
CTTTAAAGGA ACCATTCGTT CCAACTTGAC TCTAGGTTTC AATCAAGAAG TATCTGACCA	4740
GGAACCTCTG CAGGCCTTGG AGATTGCGCA AGCTAAGGAT TTTGTCAAGT AAAAGGAAGG	4800
ACTCTTGGAT GCTCTAGTTG AGGCAGGGGG GCGAAATTC TCAGGTGGAC AAAAACAAAG	4860
ATTGTCTATC GCCCAGACAG TCTTGCGCCA GGCTCCGTTT CTCATCCTAG ATGATGCAAC	4920
CTCGGCACTG GATACCATTA CAGAGTCCAA GCTCTTGAAA GCTATTAGAG AAAATTTTCC	4980
AAACACGAGC TTAATTTTGA TCTCTCAACG AACCTCAACT TTACAGATGG CGGACCAGAT	5040
TCTCCTCTTG GAAAAAGGTG AGTTGCTAGC TGTGGCAAG CACGATGACT TGATGAAATC	5100
CAGCCAAAGC TATTGTGAAA TCAATGCATC CCAACATGGA AAGGAGGACT AGAATGAAAC	5160
GACAAACTGT AAACCAGACG CTCAAACGTT TAGCCGTAGA TTTAGCAAGC CATCCTTTCC	5220
TCCTTTTCCT AGCCTTTCTA GGAACATATG CCAAGTTGG CTTATCAATT TACCTACCTA	5280
TTCTGATTGG GCAGGTCATT GACCAAGTCC TAGTGGCTGG TTCATCACCA GTTTTTTGGC	5340
AGATTTTCT CCAGATGCTC TTGGTGGTAA TAGGAAATAC TCTGGTACAA TGGGCCAATC	5400
CTCTCCTCTA TAATCGTCTA ATCTTCTCTT ATACCAGAGA TTTACGGGAG CGAATCATCC	5460
ATAAGCTCCA TCGTTTACCG ATTGCCCTTG TAGATAGGCA AGGTAGTGGG GAGATGGTTA	5520
GTCGTGTAAC CACGGACATC GAACAGTTGG CAGCTGGCTT GACCATGATT TTAAACCAAT	5580
TTTTCATGG TGTTTTGATG ATTTTGGTCA GTATTCTAGC CATGCTCCAA ATTCATCTCC	5640
TCATGACTCT CTTAGTCTTG CTGTTGACGC CACTGTCCAT GGTGATTCA CGCTTTATTG	5700
CCAAGAAATC CTATCATCTC TTCCAGAAGC AAACAGAGAC GAGGGGAATT CAGACTCAGT	5760
TGATTGAAGA ATCGCTTAGT CAGCAGACTA TAATCCAGTC CTTCAATGCT CAAACAGAAT	5820
TTATCCAAAG ATTGCGTGAG GCTCATGACA ACTACTCAGG CTATTCTCAG TCAGCCATCT	5880

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TTTATTCTTC AACGGTCAAT CCTTCGACTC GCTTTGTAAA TGCACACATT TATGCCCTTT	5940
TAGCTGGAGT AGGAGCTTAT CGTATCATGA TGGGTTGAGC CTTGACCGTC GGTCTTTAG	6000
TGACTTTTTT GAACTATGTT CAGCAATACA CCAAGCCCTT TAACGATATT TCTTCAGTGC	6060
TAGCTGAGTT GCAAAGTGCT CTGGCTTGGC TAGAGCGTAT CTATGGAGTC TTAGATAGCC	6120
CTGAAGTGGC TGAACAGGT AAGGAAGTCT TGACGACCAG TGACCAAGTT AAGGGAGCTA	6180
TTTCCTTTAA ACATGTCTCT TTTGGCTACC ATCCTGAAAA AATTTTGATT AAGGACTTGT	6240
CTATCGATAT TCCAGCTGGT AGTAAGGTAG CCATCGTTGG TCCGACAGGT GCTGGAAAAT	6300
CAACTCTTAT CAATCTCCTT ATGCGTTTTT ATCCCATTAG CTCGGGAGAT ATCTTGCTGG	6360
ATGGGCAATC CATTTATGAT TATACACGAG TATCATTGAG ACAGCAGTTT GGTATGGTGC	6420
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TAGACGAGGC AACTTCTTCC ATTGATACAC GGACAGAAGT GCTGGTACAG GATGCCTTTG	6720
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AACTCATGGA TAGAAAGGT AAGTATTACC AAATGCAAAA AGCTGCGGCT TTTAGTTCTG	6900
AATAAGCCAT TCTCTTTTGA AAGTTTATGG ACGAAAAAAG TTGCCTTCGA GTGACTTTTT	6960
TGTTACAATA GCTAGAAAAA TTGTTCACTG TAATACTCAA TGAATATCAA AGAGCAAAC	7020
AGGAAGCTAG CCGTAGGTTG CTCAAAGCAC AGCTTTGAGG TTGTAGATAA GACTGACGAA	7080
GTCAGTTCAA AACACTGTTT TGAGGTTGCA GATAGAAGT ACGAAGTCAG CTCAAAACAC	7140
TGTTTGGAGG TTGCAGATAG AACTGACGAA GTCAGCTCAA AACAGG	7186

(2) INFORMATION FOR SEQ ID NO: 40:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 14273 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 40:

CTGAAAATTC TAAAAAATTT ATAAGTAAGG AATTAATTAG TTATTTTGT GATAAAGTTT	60
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ATGATGAAAT ATTTGTTGAA GAGGTAGTTC CGCACGTTTT TCTGCCATAT GAATCTGACT	120
TACTTCTTAT TTTACCAGCT ACGGCAAATG TGATTGGCAA AATTGCTAAT GGTATTGCTG	180
ATGATTTAGT TACAGCAACT GTTTTAACT TTAATAAAAA AATAATTTTT TGTCCCAATA	240
TGAACCTCTAC TATGTGGGAC AATCACATAG TTCAAAGAAA TGTATCAATT CTAAAGGAGT	300
TGGGACATAT ATTTTTATTT GAGTCTAAAA AACATATGA GGTAGGATTG CGTAAAGCAA	360
TAGATTCAAC ATGTTCAATG TTACAACCAC AGTCGTTAGT AAAAGAACTT ATCAAATTAG	420
AAAATATTGT CCTTGAAGAG GGACATTAAA AACTACTGAG AATATTAATG AGGGGAAAAA	480
ATGGAAAATT CATCAATCGA TGTAGATATG CTGTTGGAAG AATTGACACA AGAAGCAATG	540
GTCGTTGTTG CTGTTGATAA GGACTGTTAA TTTAACTTA TGGCAATATA TGAAAGGTTA	600
CTGGATGTTT TAAATTATGC AGGCAGTAGC CTTTTATTAT ATACAAATGG ATAAAGTAAG	660
GATAATACAA TGATTAATAA AAAAATACAA CAAGTTGTTT TGGAATCATT ACAGAATTTT	720
TTGAATGGGA ACTTCATTTT GCCTTGTTGA GTCTATGATT TTGGCTTGCT GGAAACTGTA	780
CTTGATGAAT TTA AAAATCA AATTCCTGTA ACATTCAATT ACCAACTTTT TTATGCCGTT	840
AAAGCAAAT CAAATGAGAA GATACTTGAA TTCTTAGTAG ATAAAATTGA TGGAGTTCAT	900
GTGGCGTCAT TATCTGAATT AGATGTGGCT AAAAAATTTT TCCCACCAAC TCAAATTTCT	960
GTTAATGGTC CCGCATTTTC TTATGAACT TTATATAATC TGATTAAAAA ACAATATAAA	1020
GTTGATATTA ACTTTTTGGA ACATCTTCAA CAATTTTCCC CAAAAGAATC TGTTGGAATA	1080
AGAGTAACGG AGCCAGATGA ACTTAATAAT CGTATGAGTC GATTTGGAAT AAATATTTGC	1140
AGTGATAATT GGACTAGTAA TTTACAAAAT CCTTTAATTA CACGACTGCA TTTTCATTTT	1200
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ATTAATAAAC TTAGAGAGGT TAGAGAAAATA AATCTTGGAG GCGGTTTTAT GAAATTATTT	1320
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ATTGATAGTA CTGTGACTAC AATAATAGAA CCAGGTAGTG CAATTACTTC ATTTTCTGCC	1440
TATATGATTA CTAGCCCAGT TAATGTTAGT GAGGTGAATG AGCAGCAGGT TATCACCTTA	1500
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TCAAGTAGTA AAGAGCGTTA TAGTACTATT CTCTATGGTA ATACCTGTTA TGAACATGAC	1620
AAGTATAAAA TGAAAGTTTC GCTTCCAAGG TTAAC TCAA ATAGCAGTAT AGTGTTTTTT	1680
CCTGTAGGAG CTTATATAAA AAGCAATCAT TCAAATTTAC ATCGTAATGA TTTTATGCGG	1740
GAGGTATATT TGTGGACAAA AAACCTGACA TATTAGATAA AGTTAAGGAA TATTTAGGAA	1800
ATAAACTAC TCAAATTCG GATAATCAAT ATAAAGAATT TTTGAACTT AATGATATAA	1860

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GGCGAGCGTT TGGTATTTCA GAAAAAGTAT TAAACAATTC TTTTAATTTT ACGAGTAAAG	1920
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AGGAATGGAG AAAAAAATGC TTTAATCATT CTTATCGTTT TCTATGCTCA CCTATAATTA	2040
CAGATGATTT TCTTAACACG AAGACATTGA GAAGTAGCCA AATTGAATAT AAATATGAGC	2100
GATATTTATC GAAAAGTTTC ATAGGCGATA GAGCGGTGA TGGCTTTGTT TCCTTCAATA	2160
CTTTAACAGC TAATGGTATG TCTGCTATTA AACTATGTCT TGAGATATTA AACTCTATTT	2220
TCTTCAAGAA GAAGATTGAT TTATTATATT CAACCGGATA TTATGAAACA AGATTTTTAT	2280
TAAATAATCT TGCTAAATCA GGTATTAGTT GCTATGAGGT AAGTAATTGT GAATTGGATA	2340
AAGATAAATT TTATAATGTA TTCATGATGG AACCCAATCG AGCCGATTTA ACATTACAAA	2400
AAACTGATTT CAAGATAGTA GAATATTTTG TTAAGTATAA AAATAATTCA ATAAAAGTCG	2460
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ATTGTTGTTG TTAATAATTA GAACTAGCAA TCGGAATATA GAAAACCTCT CTTTCAAATA	3720
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CCAATGCTTT GATGGATAGG ATGTACTTTA GCAAGATGTT TTTAGTCGTA ACGGTATCGT	4500
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GCGTTCCCCA GAAACGGACT TACTCATTGA CTCTTCAAAG ATTTGGGGAG AAGATTTTGC	4620
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CAATTTCTAG GAAAATAGAT ACAGAAAGGG GCTGAAAGAT GTCTCATATT ATTGAATTGC	5280
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TCAAAGAGTT GGTAGAAAAT GCCATTGACG CGGGCTCTAG TCAGATTATC ATTGAGATTG	5400

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AGGCCAATCA TCGTATTGAT GATCATTCAG CTAGACAACCT CCTCTATCAG CTTTCTCAAT	7080
GTGACAAATCC CTATAACTGT CCTCACGGAC GTCCTGTTTT GGTGCATTTT ACCAAGTCGG	7140



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ATATGGAAAA GATGTTCCGA CGTATTCAGG AAAATCACAC CAGTCTCCGT GAGTTGGGGA	7200
AATATTAAAA GTATAAAAAA GTCTGGGAAA AATTTTCAAA ATCAAAAAAA CGCATAAAAT	7260
CAGGTGTTC AAAAACTTGA TTTTATGCGT TTTATCATGG AAATAGTTAC TTCATTTTTT	7320
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TGTTTTGAGC TAATTTTGCC AGTTTGTCT GTAACATCGA AGTTGTGTTT TACCACTCTG	7440
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GTTTCTTTAT TCGTCTAAAA GTAGAGTCTG TTCTATGCGT CTAATGTACG AATCAGGTTG	7560
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TTGGATTGAT TTGTTTATAGT GGCTATTTTT CCATCCATTG ACATTGCATA TTTCATAAAA	10500
ACATAGGGTA CATGCTGGGT AATATACTTT CTAAAACTTT TTATTAAGTT AAGACACTCA	10560
TTTTCTAAAA TTCCAACAGT AACTTGAAGA TTATTTTCCT CAAGTATCTT TACTCCTTTT	10620
CCAGATACAA TAGGATTACA GTCTAGGCTT CCAATGACTA CTCTTGTAAT ACCACTATCG	10680

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ATTATAGCAT CTATACAGGG AGGTGTTTTT CCGAAGTGAC AACAGGGTTC AAGTGTTACA	10740
TAAAGCGTCG CTCCGACAGG GGATTCTCTA CAGTTTTTAA GAGCATTTCCT CTCAGCATGT	10800
GGGCCACCAA AAAACTCATG ATAACCTTGT CCGATAATGT GATTATCTTT TACAATAACT	10860
GCGCCGACCA TAGGATTGGG ATTGACGTAA CCAGCCCCTT TTTGTGCCAG TTTTATTGCT	10920
AATTTCATAT ATTTTGAATC GCTCATCTCG CTACCTCCAA AAAAATATAC CTTGAATAGG	10980
GGACTACTCA AGGCATACAA AAGAAAACCT ATGCGATTAA CAAAAATGCT CTGAAATGAC	11040
AAGTAATCAT TTCAGAGCAC GCAAAAAGCA CAAATATACT TTTATCTTCT TTCATCCAGA	11100
CTATACTGTC GGCTTTGGAA TTTACCCAAA TCATGCCCTT CGGCTCGTGG GCTATACCAC	11160
CGGTAGGGAA TTTACCCCTG CCCTGAAGAT AGTTATTCAA TTACAGATGA TTATAGTACT	11220
TAATTTTGAA TATGTCAACA GATAAATACC GATTGTTTTT GATATACTGT ATTTGTGATA	11280
ATCGATTCTC GCTCCTCGGA TAAAGAAAAT ATGATATACT AGATAAACGA AATAAGAGAG	11340
AAGGAATACT ATGTACGCAT ATTTAAAAGG AATCATTACC AAAATTACTG CCAAATACAT	11400
TGTTCTTGAA ACCAATGGTA TTGGTTATAT CCTGCATGTG GCCAATCCTT ATGCCTATTC	11460
AGGTCAGGTT AATCAGGAGG CTCAGATTTA TGTGCATCAG GTTGTGCGTG AGGACGCCCA	11520
TTTGCTTTAT GGATTTGCTT CAGAGGATGA GAAAAAGCTC TTTCTTAGTC TGATTTGGGT	11580
CTCTGGGATT GGTCTGTAT CAGCTCTTGC TATTATCGCT GCTGATGACA ATGCTGGCTT	11640
GGTCAAGCC ATTGAAACCA AGAACATCAC CTACTTGACC AAGTTCCCTA AAATTGGCAA	11700
GAAAACAGCC CAGCAGATGG TGCTGGACTT GGAAGGCAAG GTAGTAGTTG CAGGAGATGA	11760
CCTTCCTGCC AAGCTCGCAG TGCAAGCAAG TGCTGAAAAC CAAGAATTGG AAGAAGCTAT	11820
GGAAGCCATG TTGGCTCTGG GCTACAAGGC AACAGAGCTC AAGAAAATCA AGAAATTCTT	11880
TGAAGGAACG ACAGATACAG CTGAGAACTA TATCAAGTCG GCCCTTAAAA TGTGGTCAA	11940
ATAGGAGCAG AGAATGACAA AACGTTGTTC GTGGGTCAAG ATGACCAACC CGCTCTACAT	12000
CGCCTATCAT GATGAGGAGT GGGGCCAGCC CCTCCATGAT GACCAAGTAT TGTTTGAGTT	12060
GTTGTGTATG GAAACCTATC AGGCAGGCCT GTCTTGGGAA ACGGTACTCA ACAAACGCCA	12120
AGCTTTCCGA GAAGTCTTTC ATAGCTATCA AATTCATCTA GTCGCAGAGA TGA CTGACAC	12180
TGAATTGGAA GCCATGCTGG AGAATCCAGC TATCATTGCA AATAGAGCCA AGCTTTTTCG	12240
TACACGCGCT AACGCCCAAG CCTTTCTACA GTTACAGGCA GAGTACGGCT CTTTGTATGC	12300
CTATCTTTGG TCTTTTGTG AGGGGAAAAC TGTCGTTAAC GATGTTCTTG ATTATCGCCA	12360
AGCGCCAGCT AAAACACCCT TATCTGAGAA ATTAGCCAAA GATCTCAAAA AACGAGGCTT	12420
CAAGTTCACA GGCCAGTCG CCGTATTGTC TTTTCTACAG GCTGCAGGGC TAGTTGATGA	12480

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CCACGAGAAT GATTGTGAGT GGAAAGGTCT TAAATGATGT CTAACAAAAA TAAGGAAATT	12540
CTGATTTTGG CGATTCTCTA TACAGTCCTC TTTATGTTTG ATGGCGTTAA ATTGCTGGCT	12600
TCTTTAATGC CATCTGCCAT TGCAAATTAT CTGTTTATG TAGTTTTAGC TCTATATGGC	12660
TCCTTCTTGT TCAAGGATAG ATTGATCCAA CAATGGAAGG AGATTAGAAA GACTAAAAGA	12720
AAATTCTTCT TTGGAGTCTT AACAGGATGG CTCTTTCTCA TTCTGATGAC TGTGTCTTTT	12780
GAATTGTAT CAGAGATGTT GAAGCAGTTT GTGGGACTAG ATGGACAAGG TCTAAATCAG	12840
TCTAATATTC AAAGTACCTT TCAAGAACAA CCACTACTGA TAGCTGTTTT TGCTGTGTGC	12900
ATTGGACCTC TGGTAGAAGA ATTATTTTTT CGTCAGGTCT TATTGCATTA CTTCAGGAA	12960
CGGTGTGTCAG GTTTACTAAG CATTATTCTG GTAGGACTTG TTTTGTCTCT GACTCATATG	13020
CACAGTTTGG CTCTATCAGA GTGGATTGGT GCAGTTGGTT ACTTAGGTGG AGGCCTTGCC	13080
TTTTCTATTA TTTATGTGAA AGAAAAAGAG AATATCTACT ATCCCTACT TGTTCACATG	13140
TTAAGCAACA GCCTCTCCTT AATCATTTTA GCTATCAGTA TAGTAAATG AAATGAGAAC	13200
AGGACAAATC GATTTCTAAC AATGTTTTAG AAGTAGAGGT GTACTATTCT AGTTTCAATA	13260
TACTGTAATA TGTGATGAAA ATGCCAGTAA TGATACCGAG AAAAAAGCTG AGAAACTTTT	13320
CCCAGCTTTA TTTGTTATAG TCAAAGAGAA TGACTTGTTC CTGTGCATCT ACATGAGCAT	13380
GGACCCCAAA GGGTACAATT GCTCTTGGAG TTGCGTGGCC GACATTCAGA TTATAGACAA	13440
TCGGGATATT GCTGTCAATG ATATCCAATA GTGCCTCTTT ATAGTCGTCA TGGAAAGTTT	13500
CATCCATAGG TTTCCGACC AAGAGTCCAT TGATGACCGC GAATATGCCA GTGTCCTTTA	13560
AAGTTAGCAA CATCTTTTGG AAGTCTTCTG GCTTAGGCTT TTCTTCGCTT GTTTCGAGCA	13620
AGAGGATTTT CCCTTCCGAG TCTGACAGT CAGGGAAAAG TCTGTATCTT TGGCAGGTT	13680
CCGTGCTATC TCGGTATCGA GAGTTGTCAA AGATATCGTA GAGGGATTGG AGGCAACCAC	13740
CGAGGATTTT CCCCTCGAAC TGGGCACTTC CTGCAACAA GTCAAAACCT GTATTTGTAT	13800
GACTGACACG AGGTGTTCCC AGGGCCGTGG GACTAAAATC ACTTCGTTC TCATACCAAA	13860
CGTCACTAGG GCGGATTCTT GAAATTCTTC CCGTCTCAAT CAATTCTTTA AAGTAGTGAA	13920
GGCTATAGGC TAGCATTTCT TTGTCTAATT CACAAATGTC TGCTAAAAAG GATTGACCAT	13980
AAAAAGTCTT GATTCCTAAT TTATGCAACA TGAGGTGGTT CATGGTTGTA TCCGAGAAGC	14040
CAAGAAAAAT TTTTGTCTTG ATAACCTTTT GGAGTTGGTC ATTTTCAAAA AGATAAGGTA	14100
GCAAGCGATA GGTATCGTCT CCACCGATGG CACATAGGAT CATGTGATG CTATCATCAG	14160
AAAAGGCATG AATCAAATCC TCTGCACGAG CTTCAGGATG GTCCTTGATA AAGTCTAATC	14220

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CTTTTAACGA ATGGGGCAAA AAGATGGGAT TGGTCCCAGA TCCTTGAGAC GTT

14273

(2) INFORMATION FOR SEQ ID NO: 41:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9828 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 41:

GTGAAGTGCG GCAAAAGGTG CAAGTGATGA GCTCAGGTTC TTTAGCTCTT GACATTGCCC	60
TTGGCTCAGG TGGTTATCCT AAGGGACGTA TCATCGAAAT CTATGGCCCA GAGTCATCTG	120
GTAAGACAAC GGTGGCCCTT CATGCAGTTG CACAAGCGCA AAAAGAAGGT GGGATTGCTG	180
CCTTTATCGA TCGGGAACAT GCCCTTGATC CAGCTTATGC TCGGGCCCTT GGTGTCAATA	240
TTGACGAATT GCTCTTGCTT CAACCAGACT CAGGAGAGCA AGGTCTTGAG ATTGCGGGAA	300
AATTGATTGA CTCAGGTGCA GTTGATCTTG TCGTAGTCGA CTCAGTTGCT GCCCTTGCTT	360
CTCGTGCGGA AATTGATGGA GATATCGGAG ATAGCCATGT TGGTTTGCGAG GCTCGTATGA	420
TGAGCCAGGC CATGCGTAAA CTTGGCGCCT CTATCAATAA AACCAAAACA ATTGCCATTT	480
TTATCAACCA ATTGCGTGAA AAAGTTGGAG TGATGTTTGG AAATCCAGAA ACAACACCGG	540
CGGGACGTGC TTTGAAATTC TATGCTTCAG TCCGCTTGGG TGTTCTGGT AATACACAAA	600
TTAAGGGAAC TGGTGACCAA AAAGAAACCA ATGTCGGTAA AGAACTAAG ATTAAGGTTG	660
TAAAAAATAA GGTAGCTCCA CCGTTTAAGG AAGCCGTAGT TGAAATTATG TACGGAGAAG	720
CAATTTCTAA GACTGGTGAG CTTTGAAGA TTGCAAGCGA TTTGGATATT ATCAAAAAAG	780
CAGGGGCTTG GTATTCTTAC AAAGATGAAA AAATTGGCA AGGTCTGAG AATGCTAAGA	840
AATACTTGGC AGAGCACCCA GAAATCTTTG ATGAAATTGA TAAGCAAGTC CGTTCTAAAT	900
TTGGCTTGAT TGATGGAGAA GAAGTTTCAG AACAAGATAC TGAAAACAAA AAAGATGAGC	960
CAAAGAAAGA AGAAGCAGTG AATGAAGAAG TTCCGCTTGA CTTAGGCGAT GAACTTGAAA	1020
TCGAAATTGA AGAATAAGCT GTTAAAGCAG TGGAGAAATC CGCTACTTTT TCGATTTTGT	1080
ATTCAAGTTT TTAGATTATA TATAGTAGCT TGAAATAAGA TATGAACAAC TCTATTAGGA	1140
AAGTCAAATT AATTCTAGA AATGTTTGTG CAGCTACAGC GTACTATTCC AAACCAACC	1200
AACTATAATA GATCGAAACT AGAATAGTAC ATATCTACTT CTAACACATT GTTAAAAATC	1260
GATTTGACTT TCCTTATTTT ATTCCGCTAT ATATAGTTTG CTGTTTCTTG TCGCTCCTCT	1320
GGAAAGCTGA TATAATAGCT TTATGAATAA AAAACGAACA GTGGACCTGA TACATGGTCC	1380

GATTCTTCCC TCGCTCTTAA GCTTCACCTT TCCAATTTTG CTATCAAATA TTTTCAACA	1440
GCTCTATAAC ACTGCTGATG TCTTGATTGT TGGACGATTT CTTGGTCAAG AATCCTTGGC	1500
TGCAGTAGGA GCGACGACAG CGATTTTGA CCTGATTGTA GGTTTTACAC TTGGTGTGG	1560
CAATGGCATG GGGATTGTCA TTGCTCGTTA TTATGGGGCT CGGAATTCA CTAAATCAA	1620
GGAAGCAGTA GCAGCCACCT GGATTTTAGG TGCTCTTTG AGCATTTAG TTATGTTGCT	1680
GGGCTTTCTT GGCTTCTATC CTCTCTTGCA ATACTTAGAT ACTCCTGCAG AAATTCTTCC	1740
TCAATCTTAT CAATATATT CTATGATTGT GACCTGTGTA GGTGTCAGCT TTGCTTATAA	1800
TCTTTTGA GGCCTGTGTC GGTCTATTGG TGACAGTCTA GCAGCCCTGG GATTCTGAT	1860
TTTCTCTGCC TTGGTTAATG TGGTCTGGA TCTCTATTT ATTACGCAAT TGCATCTGGG	1920
AGTTCAATCC GCAGGACTTG CTACCATTAT TTCGCAAGGT TTATCAGCGG TTCTCTGCTT	1980
TTATTATATT CGTAAAGTG TGCCAGAAGT CTGCCCACAG TTAAACATT TCAAATGGGA	2040
CAAAAGCTTG TACGCCGATC TCTTGGAGCA AGGTTTGGCT ATGGGCTTGA TGAGTTCAAT	2100
TGTATCTATC GGCAGTGTGA TTTTACAGTT TTCTGTTAAT ACATTTGGTG CAGTGATTAT	2160
TAGTGCCAG ACGGCAGCTC GACGCATTAT GACCTTTGCC CTTCTTCTTA TGACCGCTAT	2220
TTCTGCATCA ATGACGACCT TTGCTTCTCA GAATCTAGGA GCTAAGCGAC CTGACCGTAT	2280
TGTTCAAGGT CTTCGAATCG GCAGTCGTTT AAGTATATCC TGGGCAGTTT TTGTTTGTAT	2340
TTTCTCTTT TTGCCAGTC CAGCTTTGGT TTCCTTCTTG GCTAGTTGCA CAGATGGTTA	2400
CTTGATAGAA AATGGAAGTC TCTATCTGCA AATCAGTTCA ACCTTTTATC CCATTTTGAG	2460
CCTCTGTTG ATTTATCGCA ATTGCTTGCA GGGCTTGGG CAAAAGATCC TTCCTCTAGT	2520
TTCTAGCTTT ATTGAAGTAA TCGGAAAAT CTTTTTCTG GTTCTTATTA TTCCTTGGGC	2580
AGGATATAAG GGTGTTATCC TTGTGTAACC TCTTATCTGG GTTGCCATGA CAGTTCAACT	2640
GTACTTCTCA TTATTCCGTC ATCCCTTGAT AAAAGAAGGC AAGGCAATCT TGGCAACCAA	2700
AGTGCAATCC TAGTTGGATT TACTGAATAA AATCCATTC CTCTAGTGAA AATCGAAAA	2760
ACTTGTGTT TCTTCTTTAG TTTGGTGTG AAAATAGTTT AACAGACTTT TGACTTCTTT	2820
TATATGATAT AATAAAGTAT AGTATTTATG AAAAGGACAT ATAGAGACTG TAAAAATATA	2880
CTTTTGAAAA TCTTTTLAG CTGGGGTGTT ATTGTAGATA GAATGCAGAC CTTGTCAGTC	2940
CTATTTACAG TGTCAAAAA GTGCGTTTTG AAGTTCTATC TACAAGCCTA ATCGTGACTA	3000
AGATTGCTTT CTTTGTAAGG TAGAAATAAA GGAGTTTCTG GTTCTGGATT GTAAAAAATG	3060
AGTTGTTTTA ATTGATAAGC ACTAGAATAT GGAAATTAAT GTGAGTAAAT TAAGAACAGA	3120

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TTTGCCTCAA GTCGGCGTGC AACCATATAG GCAAGTACAC GCACACTCAA CTGGGAATCC 3180  
 GCATTCAACC GTACAGAATG AAGCGGATTA TCACTGGCGG AAAGACCCAG AATTAGGTTT 3240  
 TTTCTCGCAC ATTGTTGGGA ACGGTTGCAT CATGCAGGTA GGACCTGTTG ATAATGGTGC 3300  
 CTGGGACGTT GGGGGCGGTT GGAATGCTGA GACCTATGCA GCGGTTGAAC TGATTGAAAG 3360  
 CCATTCAACC AAAGAAGAGT TCATGACGGA CTACCGCCTT TATATCGAAC TCTTACGCAA 3420  
 TCTAGCAGAT GAAGCAGGTT TGCCGAAAAC GCTTGATACA GGGAGTTTAG CTGGAATTAA 3480  
 AACGCACGAG TATTGCACGA ATAACCAACC AAACAACCAC TCAGACCACG TTGACCCCTTA 3540  
 TCCATATCTT GCTAAATGGG GCATTAGCCG TGAGCAGTTT AAGCATGATA TTGAGAACGG 3600  
 CTTGACGATT GAAACAGGCT GGCAGAAGAA TGACACTGGC TACTGGTACG TACATTCAGA 3660  
 CGGCTCTTAT CCAAAAGACA AGTTTGAGAA AATCAATGGC ACTTGGTACT ACTTTGACAG 3720  
 TTCAGGCTAT ATGCTTGCAG ACCGCTGGAG GAAGCACACA GACGGCAACT GGTACTGGTT 3780  
 CGACAACTCA GCGGAAATGG CTACAGGCTG GAAGAAAATC GCTGATAAGT GGTACTATTT 3840  
 CAACGAAGAA GGTGCCATGA AGACAGGCTG GGTCAAGTAC AAGGACACTT GGTACTACTT 3900  
 AGACGCTAAA GAAGGCGCCA TGGTATCAAA TGCCTTTATC CAGTCAGCGG ACGGAACAGG 3960  
 CTGGTACTAC CTCAAACCAG ACGGAACACT GGCAGACAAG CCAGAATTC AAGTAGAGCC 4020  
 AGATGGCTTG ATTACAGTAA AATAATAATG GAATGTCTTT CAAATCAGAA CAGCGCATAT 4080  
 TATTAGGTCT TGAAAAAGCT TAATAGTATG CGTTTTCTTG TGGAGATATT TCCTTCAATT 4140  
 TTGCTACTAT ATTAACAAA AATCAAAAAG CAACTAGAA ACTTATGCTC AAATAAAATC 4200  
 TAAATTGAC AATGTAAACC GAGTCGGATA GCTTTAAGTA CTGTTTGTAG GTTGAAGATA 4260  
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 TTGTTTGTG ATAATTTTTT TATTTAAAA ATTATGACma GAGTGTGCTA TTCTTTTAT 4380  
 GAGAGGTGTA TGAATATGAT AAATGTATGT GATAAATGTA TGTGATGTTG GAAAAAGAAT 4440  
 AAAAGAACTT AGAATATCTT CAAATCTTAC TCAAGATAAG ATTGCTGAGT ATTTGTCTT 4500  
 GAATCAAAGC ATGATTGCCA AAATGAAAA AGGTGAAAGG AATATCACGA ATGGATTTAA 4560  
 GTAATAAAGC TTCAAATCTT AGAAAAAAGT TGGGAGCTGA TGGTGAATCG CCGATAGATA 4620  
 TTTTAAATT GGTACAAAAG ATAGAAAATT TGACGCTGGT ATTTTATGGA CTCGGAAAGA 4680  
 ATATTACCGG AGTCTGTTAT AAAGGAACTC AGTTCAGTCT CATTGCAGTC AATTCAGACA 4740  
 TGCCATTAGG AAGGTAAAGA TTTTCTTAG CACATGGACT GTATCATCTT TATTATGATG 4800  
 AGGTGAAGAA GAGTTCAGTC AGTCTTATCT TGATTGGTGA AGGAGATGAA ACTGAAAGAA 4860  
 AAGCGGATCA GTTGCTTCT TATTTTTTAA TTTTCCCATC TTCACTGTAT AGGATGGTTG 4920

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AGGAAATCAG AGAAAATGCC AATAGAACTC ATCTTGAAGT AGAAGATATT ATAAAATTGG	4980
GTCAGTTTTA TGGTATCAGT CATAAAGCTA TGTTATATAG ATTGAGGAAT GATGGATACC	5040
TTGATGCAGA AGAAATTAAA AATATGGATA TTAGTGTTAT AGAGACAGCT TCAAGATTAG	5100
GCTATGATAC AAGTTTATAT CGTCCTTTGT CAGAAAGTAA AAAAGAAATG GCATTAGGAT	5160
AATATATTAA TTCAACTGAA CAACTTTTAG AAAATAACAG AATTTCCGAA GGGAAGTATG	5220
AGGAACTGTT ACTAGATGCT TTCAGATATG ATATTGTATA TGGGCTAGAT GAAGAGGGGG	5280
GAGTTGTCGT TTGACTAGTC GTGTATTTAT TGATGCAGAT TGTATTTTCAG TATTTTTATG	5340
GGTTGGCACT GAACATCTTT TAGAAAAGCT CTATTTGGGT AAAATTGTTA TTCCACAAGA	5400
GGTGATGAT GAAATCAATA TACCTACAAT TCCCCATTTA AAATCTAGGA TAGATCAGTT	5460
GGTAGCTAAG GGTTCAGCTG AGATTGTGAG CATAGACATT GGAAGTGAAG AATACGCATT	5520
ATATAGAGAT TTAACAAGAA ATCATGATAG TAACAAGATT ATTGGTAAGG GAGAAGGGGC	5580
ATCTATTTCC TTAGCGAAAA AGCATAATGG GATATTAGGA AGTAATAACC TAAGAGATGT	5640
TAAATCATAT GTAGAAGAAT TTTCTTTAGA ATATATGACA ACAGGAGATA TACTGATTGA	5700
AGCGTTTAAA CCGTAATTTA TTAAGTGAATA AGAGGGCAAT CATATCTGGA ATAATATGCT	5760
TAAAAAGAGA AGGAAAATTG GTGCAAATTC ATTTTCAGAC TATCTTCGTG GAAGTATTCA	5820
TCAAAATAGA CAAAAATAAA TTTGGATAAA TCGAACTCAC TATTCAGGAG GCATATGAGC	5880
AATTCGAAAA AGAAAAGTGT CAAATTGAGC CTATAGGAGT AGAAGTGAAG TAGTAAGTCC	5940
TGCATAGTCG ATGAGAGAAA AGTTCTCCTT GAAGTTTCC TGAAGTATCA GTCGCATGTC	6000
AAACGATATG TAGGGTAATG TGAGAGGGGA TAGCGAGTAG TTTTGGTTA TTTTATCAAA	6060
AACTTATAT TTTATTATAC CGAATGATAA AATATATAA AATGATAGA ATAAGGAAAA	6120
AACATGAATG TCAAAAAGAT AATGTCAATT TTTCAATCCT TTTATGTTGA TGTCAGTATT	6180
GAGGAACTGA CTTTGACTTT ACCAATCAGT TTTGTAAAAA GGTTCAGTA TACTCAAATG	6240
ACTTTTCATA AGGAATCATT TTTATTGATT AAAGAAAAGA GAAGGGGGAG TTTGAGTTCA	6300
TTTGTTACTC AGGCTCGCAC TATGGGTGAA AAAGCCAATA TGGATGTTGT TTTGGTGTTC	6360
TGGAAGTTAT CAGACACTGA AAAAAAGCAA TTAAGTCAAG CTAGAGTTCC GTTTGTAGAC	6420
TTTAAGGGAA ACCTCTTCTT CCCTCCATTG GGAAGTAGTAC TCAATGCGAA TGATACTGAA	6480
GTCCCTAAGG AATTAACACC TAGCGAACAA TTAAGTGGGA TTGCTTTTTT ATTGACAAAA	6540
GGTCAAAAAG TAGTAGATGT TGATTGCTT TCACAAGTCA CTGGACTTCC AACTCAACA	6600
ATTTATAGGT GTTTGAGGAC TTTTAAAGCT TTATATGGT TAAACAAGCA AAATAAGCTT	6660



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TACACATATA CCGTGTCAAA GAAAGAATTA TTCTTAAAT CCGTGTCAATG TTTATTTAAT	6720
CCCATCAAAA AACGGATTTT ATTGCCAGAT GCGCATATAA AGCAGATAAA ATCTGTTTCT	6780
AACCTTCTAT ATGGTGGTGC TTATGCTTTG TCGCATTCAA CTTTTTTAGC TGAAACGGAT	6840
GAAAATATTA GCTATGTCAT ATGGCAGAGA AAATCAATC AGTTATCCTT GCCACTTTCT	6900
CAGCATGTTT TAAATGAAA GATGCTAGAG ATATGGAAAT ATCGTCCTTT TGTATCTGAG	6960
TTTTGGAATG ATTTTAAAA TAATCATGAT AAACAATTTG TAGATCCGAT TTCTCTTTAT	7020
TTGACCTTAA AAGATGATGA TGACCCACGT ATAGAGGAAG AGAGTGAAGC ACTAGAAAAT	7080
ATGATATTAC AGTATCTGGG AGAAGATGAT GCCAGCTAAT ACGAAAGTTA TTTTTCAGA	7140
AATGTTTGGC GATTTTCAGA ACTATTATGT TCTGATTGGG GGAAGTCTA CCTCTATCGT	7200
ATTGGATTCT CAAGGATTTA AAAGTCGCAC AACAAAAGAT TATGATATGG TCATCATTGA	7260
TGAAGTAAAA AATAAGGAAT TTTATACTAC CTTGAATCAT TTTTLAGAAT TGGGAGAGTA	7320
TCAAGGAAGT CAGAAAGATG AGAAAGCGCA GCTTTTTCGA TTTACAACAA CTAATCCTGA	7380
GTTCCTTCT ATGATTGAAC TATTTAGTAT CTTACCAGAA TATCCATTAA AGAAGGACGG	7440
TCGAGAAATT CCCTTACATT TTGACCAAGA TGCTAGTTTA TCAGCCTTAT TATTGGATGA	7500
AGATTATTAT AATATATTGG TGCATGAAAA AGAAACCATT CAGGGGTATT CGGTATTGAG	7560
TAATTGTGGT TTATACTCTT CGAAAATCTC TTCAAACCAC GTCAGCTTCC ATCTACAACC	7620
TCAAACAGT GTTTTGAGCA GCCTGCAGCT AGCTTCCTAG TTTGCTCTTT GATTTTCATT	7680
GAGTATTAAT TATTTTAAAG GCTAAAGCTT GGCTGGATAT GAGGGAGCGC TCTGCCACAG	7740
GTGCTCAAGG TTTAAGTAAG TCCATTAAAA AGCATTTGAA TGACCTTACC CGTTTGACAG	7800
CTTCCTTGCT AGGAGATGAA AAGTTATCGG CTATAACATC AAGTAGTGGG GTAAAAGCAG	7860
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ACATTTTATT GGATCAAAAT GAAATTTTGG AAATTCTGAA AAATTTTCTC GATGGTTAAA	7980
ATAATTGTAG CGAGATGGCT ATATTGAATT CGTCTATATC TGGAACTAG AAAAACTTC	8040
AATTCAGGA GAAAATGAAG TCAATCTTCC CACAATCAAA CGTATAGTAT CAAGGTTTTT	8100
CAAGACCTGA TATTATGCGT TTTTGGCTTT TCAAACTTT TTGCCCAGTC TTCGTTTTTA	8160
TCCTCTAGTC ACTTGATTG TTTTCAAGTGG TTTTLAGTA TAGTAGAATG AAACGAGAAC	8220
AGGACAAATT GATCAGGACA GTCAAATCGA TTTCTAACAA TGTTTTAGAA GCAGAAGTGT	8280
ACTATTCTAG TTCAATCTA CTATAGTTAA ATCTGCGCTC AAGTCTACTG GTGAATCTAT	8340
GATTGTAATA CTCTTCCAAA ATCTCATCAA CCACGTCAGT CTTGCCCTGC AGTCTGTATC	8400
TTACTGACCA AGCTAGTGAT GGATTTAGAA TAGGTGATTT GGAGCGCTCT ATTAGCTAGG	8460

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AAATGCTGCT CATAGTCCTT TGCTGAGGCT AGGGTGTTTC AACATTCAAC ACTCAACTGG	8520
TTGATCTAGT TGATAGGAAG GGAGTTACTA TAAAATACTC AGGCTTCCAT CATATTTTTT	8580
GAAACGATTG TGTAATCAAA ATGTACCAAT ATTGTAGTAT TGGTACAGAA GATGTTGTGA	8640
ATGGATAAAT ATATCATAAC TGCTATCTCA AAAAGATTTC ATATGTCTGT GCATATATAA	8700
TAGACTTCCT GCAAAACTAG AATCCTAGTT CATGATTGAT AATACCAGCA ATCAAATTCA	8760
TTCGTAATCC AAAGCGTTTA CGATGATTTT GATAGGTTGT TGAAAACATT TTAAACGTTT	8820
CTACTTTGGC AAAGATGTTT TCAACCTTGC TTCTCTCCTT AGATAGCGCA TGGTTATAGG	8880
CTTTATCTTC AGCTGTTAGC GGCTTGAGTT TGCTGGATTT ACGTGGAGTT TGTGCTTGAG	8940
GACATATCTT CATGAGCCCT TGATAACCAC TGTGAGCCAA GATTTTACCA GCTTGTCCGA	9000
TATTTCTGCA ACTCATTTTG AACAACCTCA TATCATGACA ATAGTTCACA GTGATATCCA	9060
AAGAAACAAT TCTCCCTTGA CTTGTGACAA TCGCTTGAGC CTTCATAGCG TGAAATTTCT	9120
TTTTACCAGA ATCATTCGCT AATTCTTTTT TTAGGGCGAT TGATTTTTAC TTCCGTCGCA	9180
TCAATCATT CCGTGTCTTC AGAACTAAGA GGAGTTCTTG AAATCGTAAC ACCACTTTGA	9240
ACAAGAGTTA CTTCAACCCA TTGGCTCCGA CGGATTAAGT TGCTTTCGTG AATACCAAAA	9300
TCAGCCGCAA TTTCTTCATA AGTGCGGTAT TCTAGGCTTA ATTTAGGTTT TCGTCCACCT	9360
TTTGCGTGTT TAAGTTGATA AGCTGTTTTT AATACAGCTA ACATCTCTTT AAAAGTCGTG	9420
CGCTGAACAC CAACAAGACC CTTAAATCGT GTATCAGTTA ATTGTTTACT TGCTTCATAA	9480
TTTCGCAGGG AGTCTATTGA CTCTTTGGTA GGTGTCAATG TTTTTTTCAT CTATCCCGAG	9540
AATTATTTTC CCGCCATTTG TATTTGCAAA TCCTGAGTAG GTTCCCAGA AAGACTCTGG	9600
AAGATTGTTT TTAGCTTTTT TGTATTCTAA ATCAACCCCT TCAAATTTTA AGTCCATATT	9660
TTTCCTTTAC ATCTGTTTTT TGTGGTTCTG GTATTTGTTT AAGTTGAGTG ATAATATAGC	9720
GAATTGAATT TCGAGAGTTT TTAATCAGTT AATTTCTTTT TTAACCCACT TTAATTGCTT	9780
TTTTAACACG GGTAAAAAA GAAATTAAAG TGGGTTAATT TTTCTTGA	9828

(2) INFORMATION FOR SEQ ID NO: 42:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 3369 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 42:

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CCGCGAAAGA TATTTTGA CAAGAGTTTG GACGTGAGGT CCGGTTAT AATAAAGTAG	50
AAGTTGACGA GTTTTGTAGAC GATGTCATCA AGGACTATGA AACCTATGCT GCCTTGGTCA	120
AGTCACTTCG TCAGGAAATT GCGGATTTGA AGGAAGAATT AACTCGTAAA CCGAAACCTT	180
CACCAGTTCA AGCAGAACCC CTTGAAGCGG CAATTACAAG TTCTATGACG AATTTTGATA	240
TTTGTAAACG CCTGAATAGA TTGGAAAAAG AAGTTTTTGG TAAACAAAT TTAGATAACT	300
CAGATTTTGA AGTAGTTATT TGAGATGTGC AATTTTTTGA TAATCGCGTG AGGAGAATTG	360
TTTCTCATGA GGAAAGTCCA TGCTAGCACA GGCTGTGATG CCTGTAGTGT TTGTGCTAGG	420
CGAAACCATA AGCCTAGGGA CGAGAAATCG TTACGGCAGT TGAAATGGCT AAGTCCTTGG	480
ATAGGCCAGA GTAGGCTTGA AAGTGCCACA GTGACGGAGT CTTTCTGGAA ACAGAGAGAG	540
TGGAACGCGG TAAACCCCTC AAGCTAGCAA CCCAAATTTT GGTGGGGGCA TGGAGTACGC	600
GGAAACGAAC GTAGTATTCT GACTGCTATC AGCTAGAGCT GTTAGTGGTA GACAGATGAT	660
TATCGAAGGA AGTGGTCCTA GTCACCTCTG GAACAAAACA TGGCTTATAG AAAATTGCAT	720
ATAGGTTGGG GCTGAGAAAT TTTCTCAACC TCATTTTTTA AAGTGGACAT ATAGAAAGGT	780
CTTGCAAGAC TGTAACATGA AAAAAGAATT TAATTTAATT GCAACTGTGG CAGCAGGGCT	840
TGAGGCTGTC GTTGGTCGTG AAGTCCGAGA GTTGGGCTAC GATTGTCAGG TTGAAAATGG	900
ACGTGTTTCT TTTCAAGGAG ACGTGAGAGC TATTATCGAA ACCAACCTTT GGCTTCGGGC	960
AGCAGATCGT ATCAAAATTA TCGTAGGAAC GTTCCCAGCT AAGACTTTTG AAGAGCTATT	1020
TCAGGGAGTT TTCGCTTTGG ATTGGGAAAA TTATTTACCA CTTGGAGCTC GGTTCCTCGAT	1080
TTCAAAAGCT AAATGTGTTA AGTCCAAACT TCACAATGAG CCCAGTGTTT AGGCTATTTT	1140
TAAGAAAGCT GTTGTCAAGA AATTGCAGAA AACTATGCT CGCCAGAGAG GGGTTCCTCT	1200
GATGGAGAAT GGCCAGAGT TTAAGATTGA GGTCTCTATT CTCAAAGATG TGGCAACTGT	1260
CATGATTGAT ACGACCGGT CTAGCCTCTT TAAACGTGGT TATCGTACCG AAAAAGGTGG	1320
CGCTCCTATC AAGGAAAATA TGGCAGCAGC CATTTTACAA CTTTCTAACT GGTATCCACA	1380
CAAGCCTTTG ATTGATCCGA CCTGTGGTTC GGGGACTTTC TGTATTGAGG CAGTTATGAT	1440
TGCTAGAAAG ATGGCGCCAG GTCTTCGTCT CTCTTTTGCA TTTGAGGAAT GGAAGTGGAT	1500
CAGCGATCGC TTGATTCAAG AAGTGCACAC AGAAGCGGCT AAAAAAGTAG ACCGTGAGCT	1560
TGAGCTGGAT ATCATGGGCT GTGATATTGA TGCTCGCATG GTGGAAATTG CTAAGGCCAA	1620
TGCTCAGGTA GCTGCTGTTG CAGGAGACAT TACTTTTAAG CAGATGCGCG TGCAGGATTT	1680
ACGTTCGGAT AAAATCAATG GAGTAATCAT TTCCAATCCG CCTTATGGTG AACGTTTGTC	1740
AGATGATGCA GGGGTGACCA AGCTCTATGC TGAGATGGGG CAAGTATTTG CACCGCTGAA	1800

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AAC TTG GAGC AAATTTATCC TGA CTAGTGA TGAAGCTTTT GAAAGCAAGT ATGGTAGCCA	1860
AGCAGATAAG AAGCGTAAGT TATACAACGG AACCTTGAAA GTGGATCTAT ATCAATATTT	1920
TGGTCAGCGT GTCAAACGGC AAGAGGTAAA ATAGAAAGGG ATACTCATGA GTAAAAAAG	1980
ACGAAATCGT CATAAAAAAG AAGGTCAAGA ACCGCAATTT GATTTTGATG AAGCAAAAGA	2040
GCTAACAGTT GGTCAAGCTA TTCGTAAAAA TGAAGAAGTG GAATCAGGAG TCTTGCCTGA	2100
GGATTCCATT TTGGACAAGT ATGTTAAGCA ACACAGAGAT GAAATTGAGG CGGATAAGTT	2160
TGCGACTCGT CAATACAAAA AAGAGGAGTT CGTTGAACT CAGAGTCTGG ATGATTTAAT	2220
TCAAGAGATG CGTGAGGCTG TAGAGAAGTC AGAAGCTTCT TCGGAGGAAG TTCCATCTTC	2280
TGAAGACATC TTA CTACCTT TGCCTCTGGA CGATGAGGAG CAAGGCTTGG ATCCTCTATT	2340
GCTAGATGAT GAAAATCCAA CAGAAATGAC TGAAGAAGTG GAAGAGGAGC AAAACCTTTC	2400
TCGTCTGGAT CAAGAGGACT CAGAAAAGAA AAGTAAAAA GGCTTTATTT TGACCGTTTT	2460
GGCGCTTGTA TCAGTAATTA TTTGTGTCAG TGCTATTAT GTCTACCGTC AAGTGGCTCG	2520
TTCGACTAAG GAAATTGAAA CTTCTCAATC AACTACAGCC AATCAATCGG ATGTGGATGA	2580
TTTTAATACA CTTTATGACG CCTTTTACAC AGATAGCAAT AAAACGGCTT TGAAAAATAG	2640
CCAGTTTGAT AAAGT GAGTC AACTCAAGAC TTTACTTGAT AAGCTGGAAG GTAGTCGTGA	2700
ACATACGCTT GCCAAATCTA AATATGATAG TCTAGCAACG CAAATCAAGG CTATTCAAGA	2760
TGTCAATGCT CAATTTGAGA AACCAGCTAT TGTGGATGGT GTGTTGGATA CCAATGCCAA	2820
AGCCAAATCG GATGCTAAAT TTACGGATAT TAAAGCTGGA AATACGGAGC TTGATAAAGT	2880
GCTAGATAAG GCTATCAGTC TTGGTAAGAG CCAGCAAACA AGTACTTCTA GCTCAAGTTC	2940
AAGTCAAACT AGCAGCTCAA GTTCAAGTCA AGCAAGTTCA AATACGACTA GTGAGCCAAA	3000
ACCAAGTAGT TCAAATGAGA CTAGAAGTAG TCGCAGTGAA GTCAATATGG GTCTCTCGAG	3060
TGCAGGGGTT GCTGTTCAAA GAAGTGCCAG TCGTGTGGCC TATAATCAGT CTGCTATTGA	3120
TGATAGTAAT AACTCTGCCT GGGATTTTGC GGATGGTGTG TTGGAACAAA TTCTAGCGAC	3180
TTACAGTTCA CGTGGCTATA TCACTGGAGA CCAATATATC CTTGAACGTG TCAATATCGT	3240
TAACGGCAAT GGTATTACAA ACCTCTACAA GCCAGATGGA ACCTATCTCT TTACCCTTAA	3300
CTGTAAGACA GGCTACTTTG TCGGAAATGG CGCTGGTCAT GCGGATGACT TAGATTACTA	3360
AGCAGTCGG	3369

(2) INFORMATION FOR SEQ ID NO: 43:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 9713 base pairs

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(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 43:

AAGTTTACAA TTAAATGAA TTAACAATTT TCCCAACTAA AAGCACTCCA GTTACCGCAA	60
CGTTTGTA CT GAATGTACTA AATCGCATTC CATCAACTTC ATCTGTTTCG TCAACTTGAA	120
CAGATACTAA TTGAAGATTT AATACTTCTG CTGCCATAGC TAGCTCCTCC TATTTAAATT	180
TTTGGGATTA AGTACTTTAT CCACCCTCAT ATACTCTCTC CACCAGTAAA ATGCAAGCAA	240
TGATACAAAA TAGATTTAAC TATTTTATAT AGCGAAAACT TACAAATTTT TAAGAAATAA	300
TTTTTGCA TT CTAAAGATA AAATAGGAAC TTTTAGTAAT AAATATTAAA ATAAATAAAA	360
TAATAGATAC TATAAAATTT GGAAGTATTA ACCCCAAAAG ATTCATATCA TCTATTAAAA	420
TATCCTCTAA AGAGTAGTAT ATTAAAGCCA TAATTTTAAT GTTAAGTAAA AATGCAATTA	480
ATGAAGTAAC AAATGTCAA AATATAGCCT CACCAACTTT AATCTTAACC ATCTGGTAAT	540
TAGAAGTTCC TAAAAATTCA AATTGCTGAA TCTCAATCCT TTCTTGATGC GATGACAAAA	600
ATGCAATTGA AATAATATTT GCAAGTACTA TCAAAATTGG TGCTCCTACA TAGACAATAA	660
ATGCTACTTT TAGCTCTAAA TCACTGTCAT CTGAAATTG AGATAGTATA TTCTGAGAAA	720
TCATTTGAAA ACTAGAAATT AGTAATATAG CTCCTGTAAT TGCAGCACTG ATAGATTTTA	780
TATAAGACTT ACAATATAGT AAATTCCTCT TCGAAACAAT GAACATAAAA TTATTTCTAA	840
ATATAATTAT AGAAAGTAGT TTGATAAAAC ATGACTGTAT AAAAGGAGAT AATTGATAAA	900
TAATCACAAT ATCTAAGATT ACAATATTGA ATATTATCTG GGCCTTCGCT AAAATTGTGC	960
TATCTTGGAA AATTTGTTGC AAAGAAAGCA ACCAGATAAC ACTAAAACCA GCCAATAGCA	1020
GTATTCTTTT TACTATTGAA AGAACATGCC TTATTTTAGA ACTCTTCCTA TTTCTAATCT	1080
TCTTGAACGT ATAAAAGCAA CCACTTAGAA AGGCTAAAAA TGAAATCAAC ACTACTGTAA	1140
TGATACATCC AACAGCACTC GTTTGAAATT GGATATCAGG TAATATATTT TCCCCGAAAA	1200
AGTATTGTAA AAAATAATAA TAATTTGACG TAACAAATAT AGAGCATAGA TATGCAATAA	1260
AACTAATAAT CGAGGAAATG ATAAAAATCT GTCCCCCACC AAGAAATGAT AGTTGAAGGC	1320
GACTTGCTCC CAACACCTCC AGAAGTTCGT AATCATCTCT AAAAAATTCA ACCAACATAT	1380
TTATTATGTT AGAGAGCACA AAGAATAATG TTACTCCTCC GAATACTATC GGAAACATAA	1440
AAATTGGTTT AGGATCTGGA AGTCCGACAA ATACTTGCGA ATTATTCTCA ACATTAATTA	1500
CCCCATTAAC AGCCAATCCC ATAATAAAC TCGAAACAAA AATTACTGGT GAAACGCCTA	1560

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ACCATTGTTT CTTATTATGT AAAAATTGAT AGTAAACTAA TCTGAGCATC TCTATTCCTC	1620
CGTAGTTGAT TGTACCTCTA AGATTTTATA CAACTCTTCC CCGCTAGGTC TATGAAGTTC	1680
TTTGAAAATT TTTCCATCTT TCAATATTAA TGCACGATCA GTTTTCGAGG CCAATTCTAT	1740
ATCGTGC GTT ACCATAATTA CACACTTACC CGCCCTACT AACTCTCTCA ATAATTCAAA	1800
AATTACTTCA CGAGAAACGC TGTCTAAAGC CCCAGTTGGC TCATCAGCAA ATATTATATC	1860
ACTATCAGCA ATAACCGCTC TAGCTATAGC AACCTTCTGT TGTCTCCAC CAGACAGAGT	1920
TCCAACAAAA TCGTTTAAGC CAGCATTAAT CTTCATTCTT TTGAGTAAGT TTTCTACATT	1980
TTAATAGTT AATTTTTTTT GTGATAATCG CAAAGGAAGT GCTATATTTT CTATTACCGG	2040
CAGGGAAGGT ATTAAATGT ATGCTTGAAT TATAAAGAT ACTTCGTTAC GTCTTATACT	2100
TGACAATTTT GCATTCTGA TTTTATAGGG GTTGATTCCA TTTAAATTA CTTCCTCACT	2160
TGTTGGTCA AGCAAAC TAG AAATACATTT TAATAAGTT GACTTTCAG AACCACTAAT	2220
TCCTAGAATA CTTATAAATT CTCCTCTCGA AGCAGAAAGA GAAACATTTT TCAGCACTTG	2280
CAACGTTTA TTATTCCTA GTAAAAATTG ATGATACAGC CCTTTCACCT TTAATATATA	2340
ATCTTTATCC ATATTCTTGC CTCCAATCAC TTAATTTTGA AAAGTGTCC ATTTTCCAAT	2400
TTATATATAT CAGTGTATCT CTTGTCATTT AAGTCATAAT GATGTGAAAC TTCAATAAAT	2460
GAAATACCTA AATTGAACAG AATATCATGT ATGGAATTTG AATTATCATT ATCTAAATTA	2520
GCTGATATTT CGTCAAATA GTACACTTTA TTATTTCTAA TCAGACCTCT AGCTAAAGCT	2580
ATTTTGTGTT TTTGACCTCC AGACAAATTA CTACCATTTT CACCACATTG ATAATTTAGT	2640
ATATCTATCT TTTCTAATC TTCATATAGA TTTACCTTTT TTAACACCTC AATTATCTGA	2700
TCATCTGAAA AATATTCATT TTGAAATAAA GTTACGTTCT CACGAATAGT AGTGTCAAAA	2760
ATATATGGTG TCTGATCAAC TGTGGTATT GAATCTGAAC TCTTTTCCC ATGTGATAAC	2820
AAATTTACAT AACCTTTTGT TGGCTTTAAA GAACCATTA TTAATTTAA AATCGTTGTT	2880
TTCCCACTAC CAGAAGTCC TGTTAATAAT ACCCTAAATG GTGACTTAAA TGAGAAGTCA	2940
ATACTTAATT TATTTCTGG TGTAATAGAA TATACAACAT CTTTCATGTG TATCTCATCT	3000
ATTGATGAAG TATACAGTCC GTTATTATCA TGTTTCAGCG CTATAAATTT CTTCTCTCCA	3060
CTTAAGTATT TTA AAAACGG TTTCTTAAA TCTTTGGTTG TATTTATCTT ATTTAATGAA	3120
TAGGCAATTG ATTGTATCGG CCTAAAAT TTATCGTTTG CTAAGAAAAT ACCTATCAGT	3180
TCACFAAAG AAAGGCTTTT ATGATAAATT ACAAATAAC ATCTACAAC CAAGGGAAGT	3240
AGAAAGCAAA AACCTGAAAT TAGTACTGCA ACCAATTTTG AAAGAACCTC TGATCGTTTC	3300

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AAATTAAAAG TAGAATCTTC TAGTTTATCC AACTTTTTTAT CCGACAAACT AATTATTTCT	3360
TTAGTAACAG AATAAGATTT TAATGTCTTA AAACCATTAA AAATTTCTTT TATTATGTGA	3420
GTATACTCTG CATTGCTGTT AGAGTACTCA TTAGCTGAAT TAGACAACAT CTTCTTCATA	3480
AAGACAGGTA CTATAATCGG CAATGCTGAT AATACAATAA ATATTATTGA NACTAGGAAG	3540
TTTAAATAAA GCATAAAACT TAGAGAGACG ATGAACAACA ATATTGAAGA AATTATTTCA	3600
AAAATTTGTC TAAAATAGTT TTCTTCGATT AATCTCAAAT CATTTGACAA AACTGAAATA	3660
ATAGATGAGT AATCTTTAAC CATTTGAGAA GAAAGATACT GTTCTCTAAA ATATCCTTGT	3720
TTAATTTTTA CATTTATATC TTTAGTTATT GATGCTTCCG TTACTTCTAA ATAGTAATTT	3780
GATATATAGA TTGCTGACCA ACCCAGAATA CTTATAGCAC CAAATCTTAG AACGTCAGAA	3840
AATGAGGAAG TCTGATTTAA ACTACCTGCA TATACAATAA TTCCTGAGAG CAAGACACCA	3900
TTAAACGAAG ATAGAAATAT TAAATCCCC ATTAATATAA GTTTAGTCTT TTTTATAAAT	3960
TTTAAATAAT TCATAAGTTA TTCCTTCCCA CTTCTTCAAA GAAATAATTT AAAGTATCAA	4020
TCATTAAGAG AACATCTGAT GGAGTAAAC CTCCATGACC AGCTGCTTTG TTTAAATACA	4080
ACAAACTTTT AACTCCAATA GAATTTAATT TCTTTGACCA CTCTATCACT TCGTTATTAT	4140
TAATATATGG GTCTTTCTCA CCCAAAATAT TAACTATAAC AGTATTTGAG TCTCGTGCCT	4200
TTTCAATATT TTGCATAGGC GAATATGACT TTATATAAGC CTTTACTTCA GGGTCTCTAA	4260
TATCTCCCCA CTCTGCTATT TCGGTCTTAG AAAGAGGATC ATTTGGATTG TGAAGTGTAT	4320
CATAAGGATT TATAAATGGC GAAAATAAGA GAATGCTTTG CAATAAATTT TTTTCCTCGT	4380
TCAACACCGC ACCAGCAATT ATTCCACCTG CACTAGAAGT TATTAAACCT AATCGCTTAC	4440
TGTCAATTAC ATCATTTTCC CTTAAATAAT TTAATCCCTC AATAAAATCT CTGATAGAAT	4500
TCCAATTGTT TAACGCCTTT CCTGAGCGAT ACCATTCAAC ACCCAAATAG CCTCCACCTC	4560
TTACATGAAC TATAGCATAA ATAAACCTG CATCTATTAT AGATAACATA ATTTCATCTA	4620
AATCAGAATT ATCATTTCTTA CCATAAGCCC CATAGACACT TAGAATACAT TTTTTCTTTC	4680
TTGGGAGCTC ATCCGTATCT TCACTTTTCC AAAATAAAGA AATCGGTATG CTTACATCAT	4740
AACTGTCTTT TTTAGTCCAA ATCACCTTAG AAAAATATTT AGTATTATTC GATTTTATGA	4800
TGGGTCTTTC AAATTCAGTT TTTAATGTAT TTTCTATTAA ATCAAAACTA AGTATTTTTT	4860
CGTAAAAAGT TCTCCTCTCT AAAAACAGAA GAACACGATC AGAAAAATGAA TTTTCATAAA	4920
GTGTTGTCTT TTCATCAAAT GTTATCTTAT TAACACTCAA CTCCCTCAAA CTATTATTTT	4980
TAAATGTAGC AAGATAAAAG ACGGAATTCG CTGCGTTTGA ACAGTCTAAA AGGATATAAC	5040
GTCCATATACA GTGAACCTCT CTAGCCCTAT CTTGATATGG TATAGTAATA GAAACTCTGT	5100

CTCCCGAAGA AGTTTCCCTT AGAATTAGTT GATCTTCTT TTCTTCAGTT GAAGAGAGCC 5160  
CAAGAAAGTA CTGTGCTTTT TCTGTACTAA ATAGAGCGAT ATCTCTAGGT GTTGGGGCTA 5220  
CCGTTTCTGT GTAAGAGTGT CTAACAAAAC CCGTCCGGTC GAAACTGTAT AGAAAAATCC 5280  
TGCCTTCTG AAAGTCTACT GACTTTACAA AACAATTATT GCTATCAATG TGGACTATTT 5340  
TTAATCGAAA AGAGCATTCG TTTTCTTCAA ACAGTTCCTC TTCTGTAAAG CTATCAAAAG 5400  
ATTTATAGAA TAACTTACTT GGCCTCCCGT ACTCTTTGGA GCGAGTATAC ATAACACCGA 5460  
ATTTACCCAA ATAGAACGAA CTTTCTACTG AAATATCTTC AATGATAAAT AACTCTTCCA 5520  
TAGTATATTT TTTTATTCCA ATTAAATTAG TCGTACGCAG TGAGGATACA ACCAAAACTA 5580  
TATAACTCTC ATCAGATGAA ATCCTAACAT CCTGTAAGAT ACTATCATCT GGCAAAAGTAT 5640  
ATTTTCCAC ATCAAAGACA ATTTAAGTG AATTGAATT GTCTAACTG GAAGAACTAA 5700  
CCTTAGGAAT CCAGTCATTA TCTTCGACAT ACCATTCCTT TATTACACCA GTATTGGGTA 5760  
TACTCCAATT ATCAAATTGG TACCAATATC GCCCTCTCCT AAATATCAAA GAATTCCATT 5820  
TTTTTAATTC CTGAAATGAT GAAGAGATAG ACCTCTTATA GTGTGTTTTT TCCTGTATTG 5880  
TATTTAAAAA TATTTCATTA CTCTGATTCA CAAGTATGAC CCCTTAATAA TGGTATCTAA 5940  
ATATTATATT TGAGGAAGAA TCGTCAATTT ATTATCCATT ATTGATACCA ATCCAATTGC 6000  
AACACCCGCA AATCCCGAAG CAATATCTGT TGTATCTTT AAACCATTAT CTCCCGCAAT 6060  
AACAAATCCT TCTTCAATTA CACACAAATA TCTATAAAGT TGTTCATTA ATTTCTTTTG 6120  
TCCTGAAAAG TTATCATCGA TATCACTATA TATATTATTA GCAACTTCAA GACCACAAAA 6180  
TCCGTAAAT AAACCTGGTA ATACACAAAA AACTACATCA GTTGCCCTCT CTAAGAAGT 6240  
TAAATATTTT AAGTATTTGC TTGACAAGAT TTCTTTATTT CTATTAATAA GTAAAAGCAG 6300  
GCCAGCACTT CCAGTTGCTA GATATGGTAG TAATCTATGA CCTTGGCTGT ACTGCAATGA 6360  
ATTATTACTA TCTACTTTAT AAGCAACTAA TTCTTTATCT ACAGCCAATT CTAGACCATT 6420  
TTTATAGATA CTTTCACCAG TTAATTTATA AGCTTCACCG AAGAGCCAAG CTACCCCTGC 6480  
GTGACCATAT AGTAATCCAC CAAAATTCTC ATAAGGATCG TTAATCTGAA CATCACTAGC 6540  
GCCAACTTTA CAAAAAGTTT CTGGATTTTC TATATAATTT AAAGTATATT CTCTAAGCCT 6600  
AATTAGTATT TCTTCTCCTA GTTTATTATC AATTCCCTCT TTAATAAGAA AATACAGTCC 6660  
AACCAGTAAA ATTCCAGCCT GCCCACTATA TAAATTTTAA TTTTGTGAAT TCTCAAATAT 6720  
CTCTATAAAA TGAGTTGTAA AAAGTTCAAC TGCCCGATCT ATCTCCCAA ATTCAATAAT 6780  
GAGCCAGATT GTACCAATTT TACCATCAAA AAGACCAGAA AGGGACGATT TCTTAAATTT 6840



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ATTTACTGCC TCATTAATAA CCTGTGTTTCG AATCTCATAA TAGTCATCAA ACTTGAAATT	6900
TTTTACTTTC TTAGCTAGTT GTTGATAACT CCAAAGGATA GCTAAATCTG AAAACGCAAT	6960
TCCTTGATTA AAATTCAGAC CATAATAATG AACTGGGAAG AATCTTGATT GAAATTCTTT	7020
ACGCCACTGT CCATAAGTTA GCGTAAACCC TCTCAATAAT TTTATAATAA AATCTTGAT	7080
ATCTTGCTCA CTCTCGATAG TTCTAATCTC ATGCATGGGT TTTAAACTTT TTTCTCTGGA	7140
AATATTCTCA ATCTGTGGAC ATTTAGAATC TAGATATGAC AATAAACTTT CTACATAATC	7200
TATATGTTCT CTTGTATAAC CCAAAGACTC AAATAGTTTT TTTCTTCTA TCCTGGTTTG	7260
ACTTACATAG TTGTATGTCA AATCCGATGT AGTTACTAGT GGCATGTATA AATAATGAGC	7320
TATTTGTCTA ATACCATAACC AATCTATCTC ACTGGGAAGT GTTCTCTGCC ATGCTCTAAA	7380
ACCAGGGGCT GCAACTTTAT GTACAACCTT TTCATCATTT GAAAAGACAG CCTGTTCCCA	7440
GTCTATTATA CTAATCTCAT CTTTATCCTT AACCAAGATA TTTCTAAAT GTAAATCTTG	7500
ATGATATACA TTTTCAGAAT GAAACTTATT CGTTAAATCG ATGAGTTTTT CTACTATCTT	7560
TGAAACTCTC AATAGATAAT CTTTGGTCTT ATCAACAACT TCATATAAAG GAAAATTATT	7620
GGTAACCCAT CTATTTAGTG GAACGCCCTT CATATGTTCA ATTCCTAAGA AGGTGTGCTC	7680
CCAGATCTTA CCGTGCCAGT ATATTTTAGG CGTCTCACTC CATTCAATTA GAATTTTTAG	7740
TGCTTTGCAC TCCGAAGCTA ATTTCTCTGA AGAATAAGTA CCATCAAATC CTAGACCTGT	7800
ATACGGTCTA GCCTCTTTTA AAATTATTTT TTTCCCATCT TCTTTTAGCC TAGCATTATA	7860
TATCCCACCA CTGTTTGAAA ATCTAATTGC ATTATCTATA ATAAAGGGAA AGTCTCCCTG	7920
TTTTTTATCT TTCTTGTCAA GCCATTTATT CAAAAAGTCA GGGGGCACTA TACCTTTTGC	7980
AATTTTAAAT ACTGGTAAAC GTTCATCTTT AACAACTTCA TCGCCAACAA TTAATTCATC	9040
AATAGCAACC TTCTTTTCAT CATCCCTTGA CGGCCTAAAC ACACCATACC TCAGATATAT	8100
TGGTGCTTCA TCCCAACGTT TATCGCTTAA AATATATGGC CCATTATATT GCTTTAAGGC	8160
ACTTTCTAAC CTTTGCAAAA CCGACTCTAA TTCATTTTGA TTTGGATAAC ATGTAATAAA	8220
TTTACCAGAA AATCCTCGAC TAACCAATTT CCCGTTTCGC ATGATAAATT TGTCTTCTGT	8280
ACTAAGATGT TTAAATGGAA TTCGCATTTT ATGGCAAATT TTTGCTACAT CTTGTAACAA	8340
TTCAATGTGA CTGTTATACT CTGAACATAA GTGTATTTTC CACCCTTGTC TTTCAACAAA	8400
TTTTCCAATA GGGTATTGAT AAACCCACTC ATCATTATTC ATTACTTCGT GCCAATTAAT	8460
AGGCAGACTT ACTTGGTACT TTATGCTAGT ATCTGCTACTA TAATCATTAT TAGTGAAAAA	8520
GAAAGGATGC TCCAAATTGA AATTATAATC CATAACAAAA TCTCCAAGAA ATTTTATCAA	8580
ACTTAATATA TCTATAGCTA GACAGACTTA TTTAAATAAA AAGGGAGAA CTCTTGGATT	8640

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CTCCCATAT AAGCACTAAC ATTCCAACGT GCACATATTG GAACGACATC CATAACTCCA 8700  
 GAGAACTCTT AAAGTTTACA ATTTAAATGA ATTAACAATT TTCCCAACTA AAAGCACTCC 8760  
 AGTTACCGCA ACGATTGTGA CTGAATGTAC TAAATCGCAT TCCATCAACT TCATCTGTTT 8820  
 CGTCAACTTG AACAGATACT AATTGAAGAT TTAATACTTC TTCTGCCATA GCTAGCTCCT 8880  
 CCTATTTAAA TTTTGGGAT TAAGTACTTT ATCCACCCTC ATTATACTCT CTCCACCAGT 8940  
 AAAATGCAAG CAATTATACA ATGTTGTCAC ATAGAAAATA ATGTTTCCGT AACTTTTCAA 9000  
 AGTAACTTCC ATCTCTCTCC CAAAAGTGA AGTTAGTTTT AGAAGTTACC TAAAAATCAG 9060  
 GTCACCTATT TTA AAAAAGC AGCAAACTAT AAAGTAGTAG GTTCCACACC AAATGTAGTC 9120  
 CCATACTGCC CCATAAGTCA GATTTATAGC GCACCATACC TAAAAACATC CCAAGTGAAA 9180  
 CATACAAACA CCAAGCTAGA ATGGTTCCTG TATGATGTGC TAAGGCAAAT AAAACACTTG 9240  
 TCAAAGCAAC TCTGATATCT AATTTTCTGA CCAAATTCCA TAAAATTCTT CGATACAGAA 9300  
 ATTCTTCAAC CATACTCGCA TTGATTAAGA ACAATAAAAA TGAAAACCAA GGAATTGAT 9360  
 GTTGAAGGCC AATTAAGTTT GCTTGATTCTG TGCTTCCTTG AGCATGAATC AGACTAAAAC 9420  
 ATAGACTTAT AATCAGTAGG CTAACAAATT CAACACCAAG CCATTTTCATC CTAGATTTCA 9480  
 TATTGACCTT ATGCGCTTGT TTGCGTTGGC CATACATCCA TAAAAAGAA ATGAGTGACG 9540  
 AACCATAGAG AATCTGTAGT ATAGTTTACT CACCGATACA AAGAAATTTC AATAAGTATA 9600  
 GAGrTACCAA TAsGACATTT ACTTGTTGGA ATATATAAAC TGGAATTATT CTTTTCATAG 9660  
 TTACCTCCGA AATAAATCTT CATAATCTAA ATCTAATACC TGCACAATCC TTT 9713

(2) INFORMATION FOR SEQ ID NO: 44:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 8657 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 44:

AAAGAAATTG TCAGAGAGTG GCTAGATGAA GTAGCAGAGC GGGCTAAGGA CTATCCAGAG 60  
 TGGGTGGATG TTTTCGAGCG TTGCTACACC GATACCTTGG ACAATACGGT TGAAATCTTA 120  
 GAAGATGGTT CAACTTTTGT CTTGACTGGG GATATTCCTG CCATGTGGCT TCGAGATTCTG 180  
 ACAGCCCAAC TCAGACCCTA CCTTCATGTA GCTAAAAGAG ATGCCCTCCT GCGTCAGACC 240  
 ATTGCAGGTT TGGTCAAACG TCAGATGACC TTGGTACTCA AGGATCCCTA TGCTAACTCC 300

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TTCAACATTG AGGAGAACTG GAAAGGGCAC CACGAGACTG ACCACACAGA CCTTAACGGC	360
TGGATCTGGG AGCGCAAGTA TGAGGTGGAT TCGCTTTGCT ATCCTTTGCA GTTGGCTTAT	420
CTCCTCTGGA AAGAGACTGG CGAGACTAGT CAGTTTGATG AGATTTTTGT CGCAGCGACT	480
AAGGAAATTC TCCATCTGTG GACGGTGGA CAAGACCACA AGAACTCTCC TTATCGTTTT	540
GTCCGAGATA CGGACCGTAA GGAAGACACC TTGGTAAATG ATGGCTTTGG ACCTGACTTT	600
GCAGTGACAG GTATGACTTG GTCAGCTTTT CGTCCGAGTG ATGACTGTTG CCAGTATAGT	660
TACTTGATTC CGTCAAATAT GTTTGCTGTA GTAGTCTTGG GTTATGTGCA AGAAATCTTC	720
GCAGCATTA ACCTAGCTGA TAGCCAGAGT GTTATTGCTG ATGCCAAGCG TCTTCAGGAT	780
GAAATCCAAG AAGGAATCAA AACTACGCT TACACCACCA ACAGCAAGGG CGAAAAGATT	840
TACGCTTTTG AAGTGGATGG CCTAGGAAAT GCCAGCATCA TGGATGATCC AAATGTACCA	900
AGTCTACTAG CTGCGCCCTA TCTGGGCTAC TGTTCGGTCG ATGATGAAGT GTATCAAGCT	960
ACTCGTCGTA CCATTTTGAG CTCTGAAAAT CCATACTTCT ACCAAGGAGA ATACGCAAGC	1020
GGTCTCGGCA GTTCTCATAC CTCTATCGC TATATCTGGC CAATCGCCCT TTCTATCCAA	1080
GGCTTGACAA CAAGAGATAA GGCAGAGAAA AAATTCCTGC TGGATCAGCT GGTTCGCTGC	1140
GATGGTGGTA CAGGTGTCAT GCACGAAAGC TTTCATGTAG ATGATCCGAC CCTCTACTCT	1200
CGTGAATGGT TCTCCTGGGC TAACATGATG TTCTGTGAGT TGGTCTTGGA TTACTTGGAT	1260
ATTGCTAAG GGGCTCGCTT TAGCTCAACC GATTCTTATC AGAATCACAA GTTTACATTT	1320
AAAACGTAA AATTTAAAT TAGAATGAGG TTTTACTTCA TGGAAAATGT TGTTGTACAT	1380
ATTATCTCAC ATAGTCACTG GGATCGTGAG TGGTACTTGC CTTTTGAAAG CCATCGTATG	1440
CAGTTGGTGG AATTGTTTGA CAATCTCTTT GATCTCTTTG AAAATGACCC TGAGTTCAAG	1500
AGTTTCCACT TGGATGGACA AACTATTGTC CTGTATGACT ACTTACAAAT TCGCCCTGAA	1560
AATCGCGACA AGGTCCAACG CTACATTGAC GAGGGCAAAC TTAATAATTGG TCCCTTTTAC	1620
ATCTTGCAGG ATGACTACTT GATCTCCAGT GAAGCCAATG TCCGCAATAC CTTGATTGGT	1680
CAACAAGAAG CTGCCAAATG GGGTAAATCA ACCCAGATTG GCTACTTTCC AGATACCTTT	1740
GGAAATATGG GACAAGCGCC TCAAATTCTT CAAAAATCAG GCATTACGT GCGGGCCTTT	1800
GGTCGTGGTG TGAAGCCGAT TGGATTGAC AACCAAGTCC TTGAAGATGA GCAGTTTACG	1860
TCTCAGTTTT CAGAAATGTA CTGGCAGGGT GTGGATGGTA GTCGTGTTTT AGGTATTCTC	1920
TTTGCCAACT GGTACAGTAA CGGGAATGAA ATTCCAGTTG ACAAAGATGA GGCCTTGACC	1980
TTCTGGAAAC AAAAATTGTC AGATGTGCGT GCCTACGCTT CGACCAACCA ATGGTTGATG	2040
ATGAACGGCT GTGACCACCA GCCTGTACAG AAAAATCTGA GCGAAGCCAT TCGTGTGGCA	2100

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AATGAACTCT TCCCGGATGT AATCTTTGTT CATAGTTCTT TTGATGAATA TGTTCAGCT	2160
GTAGAAGGTG CGCTTCCTGA ACACTTATCA ACTGTTACAG GCGAGTTGAC CAGTCAGGAA	2220
ACAGATGGCT GGTACACACT TGCCAACACT TCTTCATCCC GCATTTACCT AAAACAAGCC	2280
TTCCAAGAAA ATAGCAACCT CCTAGAGCAA GTGGTAGAAC CCTTGACTAT TATCACTGGT	2340
GGACACAACC ACAAGGACCA GTTGACCTAT GCTTGAAAA CACTTTTGCA GAATGCGCCA	2400
CATGATAGTA TCTGTGGCTG TAGCGTGGAC GAAGTTCACC GCGAGATGGA AACGCGTTT	2460
GCCAAGGTCA ACCAAGTAGG AAACCTTTGTT AAAAGTAACT TGCTCAACGA GTGGAAGGGT	2520
AAAATTGCTA CGGATAAGGC TCAAAGTGAC TATCTCTTTA CTGTCAATTA CACAGGCTTG	2580
CATGATAAGG TCGATACTGT CAGCACAGTG ATTGATGTGG CGACTTGTGA TTTCAAGGAA	2640
TTGCACCCAA CAGAAGGCTA CAAAAAGATG GCTGCTCTTA TCTTGCCAAG TTACCGTGTG	2700
GAGGACTTGG ATGGTCGTCC TGTAGAGGCT ACAATCGAAG ACCTCGGAGC TAATTTTGAG	2760
TATAATTTAC CAAAAGACAA GTTCCGCCAA GCTCGTATTG CTCGTCAAGT GCGCGTGACC	2820
ATTCCAGTTC ACCTAGCGCC GCTTTCTTGG ACAACCTTCC AATTGCTGGA AGGAAAACAA	2880
GAACACCGTG AGGGTATTTA CAAAACGGA GTGATTGATA CACCATTCTG AACGGTGAGT	2940
GTGGATGACA ACATCACAGT CTATGACAAG ACAACTCAGC AAGCCTATGA AGACTTTATC	3000
CGCTTTGAAG ACCGTGGGGA CATCGGAAAC GAGTATATCT ATTTCCAACC AAAAGGAACA	3060
GAGCCAATCT TTGCAGAGCT TAAGGGCCAC GAGGTCTTGG AAAACACAGC TTGCTATGCT	3120
AAAATCTTGC TCAAACATGA ATTGACCGTG CCTGTCAGTG CGGATGAAAA GCTAGAAGAA	3180
GAGCAACAAG GTATCATCGA GTTTATGAAG CGTGAGGCTG GACGGTCAGA AGAATTGACA	3240
AACATTCCCTC TGAAACTGA GTTGACTGTC TTCGTTGACA ATCCACAAAT CCGCTTCAAG	3300
ACTCGCTTTA CTAACACTGC CAAGGATCAC CGTATCCGTC TCTTGGTCAA GACTCATAAC	3360
ACGCGTCCAA GCAATGATTC TGAAAGTATC TATGAGGTGG TGACACGACC AAACAAACCA	3420
GCTGCTTCAT GGGAAAACCC TGAAAATCCT CAACACCAAC AAGCTTTTGT CAGTCTGTAT	3480
GACGATGAAA AAGGGGTGAC TGTATCCAAC AAGGGATTGA ATGAATACGA AATCCTTGGG	3540
GATAACACCA TTGCCGTGAC CATTTCGCGT GCATCAGGTG AGCTAGGTGA CTGGGGCTAC	3600
TTCCCAACGC CAGAAGCACA ATGCTTGCGG GAGTTTGAAG TCGAGTTTGC ACTTGAATGC	3660
CACCAAGCCC AAGAACGCTT CTCAGCCTAT CGTCGTGCCA AAGCCTTGCA GACACCGTTT	3720
ACCAGCCTTC AGCTTGCTAG ACAGGAAGGA AGCGTGGTGG CGACTGGTAG CCTCTTGAGC	3780
CATTCTGTTT TCAGCATACC GCAAGTTTGT CCAACAGCCT TTAAGGTAGC TGAAAATGAA	3840

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GAAGGCTATG TGCTTCGTTA CTACAATATG TGTAGTGAAA ATGTACGTGT GCCAGAAAAGT	3900
CAACATCTCT TCCTTGACCT ACTTGAACGA CCATACCCAG TTCATTTCAGG ACTATTGGCT	3960
CCACAAGAGA TTCGTACAGA ATTCATCAAA AAAGAAGAAA TTAAATTTCA AAAAGTAAAC	4020
ATCAAAAGAA AGGAGGGGCG AAAAAGTAAG AACTAACTGC TGATTGCCCC CTTTATGGT	4080
AAAAACAATG ACCATTGCAA CGATTGATAT CGGAGGGACT GGGATTAAAT TTGCCAGTCT	4140
GACTCCTGAT GGGAAAATAC TGGATAAGAC AAGTATTTCA ACGCCTGAAA ACTTGGAGGA	4200
TTTACTAGCG TGGCTAGATC AACGCTTGTC AGAACAGGAT TACAGTGGGA TTGCTATGAG	4260
CGTTCCAGGT GCAGTCAATC AAGAGACAGG TGTGATTGAT GGCTTCAGTG CGGTGCCCTA	4320
CATCCATGGC TTTTCTTGGT ATGAGGCGCT TAGCTCTTAT CAGCTACCTG TCCATTTAGA	4380
AAATGATGCC AACTGCGTTG GACTCAGTGA ACTACTAGCT CATCCAGAGC TTGAAAATGC	4440
AGCCTGTGTC GTGATTGGGA CAGGGATTGG CGGAGCCATG ATTATCAATG GTAGACTTCA	4500
TCGAGGTCGC CACGGTCTGG GTGGAGAATT TGGCTACATG ACAACCCTTG CCCCTGCTGA	4560
AAAACCTAAT AACTGGTCGC AACTAGCATC AACTGGGAAT ATGGTACGAT ACGTGATTGA	4620
AAAATCTGGT CATACTGATT GGGACGGTCG CAAGATTAC CAAGAGGCCG CAGCTGGTAA	4680
TATCCTTTGT CAAGAAGCCA TTGAGCGCAT GAACCGCAAT CTGGCGCAAG GCTTGCTCAA	4740
TATCCAGTAT CTGATCGATC CAGGTGTCAT CAGTCTGGGT GGCTCTATCA GTCAAAATCC	4800
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CACGGTCGCA CCAGTTATCC AGGCCTGCAC CTATCACGCA GATGCCAATC TCTACGGTGC	4920
TCTTGTCAAC TGGCTACAGG AGGAAAAGCA ATGGTAAGAT TTACAGGACT TAGTCTCAAA	4980
CAAACGCAAG CTATTGAGGT TTTAAAAGGT CACATTTCTC TACCAGATGT GGAAGTGGCT	5040
GTCACCTCAGT CTGACCAAGC ATCTATCTCT ATCGAGGGTG AGGAAGGTCA CTATCAATTG	5100
ACCTACCGCA AACCTCACCA ACTTTATCGT GCCTTGTCCT TGTTGGTAAC AGTTCTAGCA	5160
GAAGCTGATA AAGTAGAGAT TGAGGAACAA GCAGCTTACG AAGATTGGC TTACATGGTT	5220
GACTGTTCTC GAAATGCGGT GCTGAATGTG GCTTCTGCCA AGCAGATGAT TGAGATATTG	5280
GCTCTCATGG GCTACTCAAC CTTTGAGCTT TACATGGAAG ACACTTACCA GATTGAAGGG	5340
CAGCCTTACT TTGGCTATTT CCGTGGAGCT TATTTCAGCAG AGGAGTTGCA GGAATCGAA	5400
GCCTATGCCC AACAGTTTGA CGTGACCTTT GTACCATGCA TCCAGACCTT GGGCCACTTG	5460
TCGGCCTTTG TCAAATGGGG TGTCAAGGAA GTGCAGGAGC TCCGTGATGT AGAGGACATT	5520
CTTCTCATTG GCGAAGAAAA GGTATATGAC TTGATTGATG GCATGTTTGC CACGTGTCTT	5580
AAACTGAAGA CTCGCAAGGT CAATATCGGG ATGGACGAAG CCCACTTGGT TGGTTTGGGA	5640

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CGCTACCTGA TTCTGAACGG TGTGTGGAT CGTAGTCTCC TCATGTGCCA AACTTTGGAG	5700
CGCGTGCTGG ATATTGCTGA CAAATATGGT TTCCACTGCC AGATGTGGAG TGATATGTTT	5760
TTCAAACCTCA TGTCAGCGGA TGGCCAGTAC GACCGTGATG TGGAAATTCC AGAGGAAACT	5820
CGTGTCTACC TAGACCGTCT CAAAGACCGT GTGACTCTGG TTTACTGGGA TTATTATCAG	5880
GATAGCGAGG AAAAATACAA CCGTAATTTT CGCAATCATC ACAAGATTAG CCATGACCTT	5940
GCATTTGCAG GGGGAGCTTG GAAAGTGGATT GGCTTTACAC CTCACAACCA TTTTAGCCGT	6000
CTAGTGGCTA TCGAGGCTAA TAAAGCCTGC CGTGCCAATC AGATTAAAGA AGTCATCGTA	6060
ACGGGTTGGG GAGACAATGG TGGTGAACT GCCCAGTTCT CTATCCTACC AAGCTTGCAA	6120
ATCTGGGCAG AACTCAGCTA TCGCAATGAC CTAGATGGTT TGTCTGCGCA CTTCAAGACC	6180
AATACTGGTC TAACGGTTGA GGATTTTATG CAGATTGACC TTGCCAACCT CTTACCAGAC	6240
CTACCAGGCA ATCTCAGCGG TATCAATCCC AACCGCTATG TTTTTATCA GGATATTCTT	6300
TGTCCGATTC TTGATCAACA CATGACACCT GAACAGGACA AACCACACTT CGCTCAGGCT	6360
GCTGAGACGC TTGCTAACAT TAAAGAAAAA GCTGGAACT ATGCCTATCT CTTTGAACT	6420
CAGGCCCCAGT TGAATGCTAT TTTAAGTAGC AAAGTAGATG TGGGACGACG CATTCTCAG	6480
GCCTACCAAG CGGATGATAA AGAAAGTTTA CAACAAATCG CCAGACAAGA ATTACCAGAA	6540
CTTAGAAGCC AAATTGAAGA CTTCCATGCC CTCTTTAGCC ACCAATGGCT GAAAGAAAAAC	6600
AAGGCTCTTG GTTTGGATAC AGTTGACATC CGTATGGGCG GACTCTTGCA ACGCATCAAA	6660
CGAGCAGAAA GCCGTATCGA GGTATATCTG GCTGGTCAGC TTGACCGCAT CGACGAGCTG	6720
GAAGTTGAAA TCCTACCATT TACTGACTTC TACGAGACA AGGATTTGCG AGCAACTACA	6780
GGCAACCACT GGCATACCAT TGGCAGAGCG TCGACGATT ATACGACTTA ATATTCTTCG	6840
AAAATCTCTT CAAACCACGT CAGCTTCCAT CTGCAACCTC AAAACAGTGT TTTGAGCAAC	6900
CTGCAGCTAG CTTCTAGTT TGCTCTTTGA TTTTCATTGA GTATAAAAAC AAGAACACCT	6960
TGCTTGCGCG AGGCTGTTTC GCGTGAAACA GAAGAATTAT CTGGTTTCAA ATGCTACAGT	7020
TAGACAAACT TATGATAAAA TAGCAGAAAG TGAATGTTTC CTAAGAGCAA TTGGAGGTAT	7080
TATGCTACAC TTAAATTAG TAAACAAGA AATAGAAGCT GAAAAGCCAG CATCTGTAGA	7140
AGCTTGGATC ATTTCCGTCA AATTTAAAAA AGGTTGCTAC CGACATATAT AGATTCCAAA	7200
AACAAAAACG TTAGCGGAAC TAGCAGATGT GATTTTATGG AGTTTGTATT TTGCAATGA	7260
TCATGCTCAC GCATTTTTC TGGATAATGT TGAGTGGAGT CATGCAGATT CTTACTTTCC	7320
TAGCTTTGTT AGTGACGATG TTGAAGAACG TTACACAGAA AATGCTATC TGGATAGCCT	7380

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AAGTGTCAAA CAAAAATTTA AGTTTATTTT CGACTTCGGT GATGATGGC GTTTTGAATG	7440
CCAAGTGCTG AGAGAAATCG AGACAGAGGA CGAAGAAGCT TATCTCGTAC GTTCGGTTGG	7500
AACGTCGCCA GAACAATATC CAGATTATGA TGGTTTGGAC TATGAAGAAT GGTAAAATTG	7560
AAATCAGTCT GTGTAGGCTT AGTATTTCAA TAGACTTCCT GCAAAACTAG AATCCTAGTT	7620
CATGATTGAT AATACCAGCA ATCAAATTCA TTCGTAATCC GAAGCGTTTA CGATGATTTT	7680
GATAGGTTGT TGAAAACATT TTAAACGTTT TTAATTTGGC AAAGATGTTT TCAACCTTGC	7740
TTCTCTCCTT AGATAGCGCA TGGTTATAGG CTTTATCTTC AGCTGTTAGT GGCTTGAGTT	7800
TGCTGGATTT ACGTGAAGTT TGTGCTTGAG GACATATCTT CATGAGCCCT TGATAACCAC	7860
TGTCAGCCAA GATTTTACCA GCTTGTCCGA TATTTCTGCA ACTCATTTTG AACAACTTCA	7920
TATCATGACA ATAGTTCACA GTGATATCCA AAGAAACAAT TCTCCCTTGA CTTGTGACAA	7980
TCGCTTGAGC CTTCATAGCG TGAAATTTCT TTTTACCAGA ATCATTGCTT AATTCTTTTT	8040
TTAGGGCGAT TGATTTTAC TTCCGTCGCA TCAATCATTA CCGTGTCTTC AGAACTAAGA	8100
GGAGTTCTTG AAATCGTAAC ACCACTTTGA ACAAGAGTTA CTTCAACCCA TTGGCTCCGA	8160
CGGATTAAGT TGCTTTCGTG AATACCAAAA TCAGCCGCAA TTTCTTCATA AGTGCGGTAT	8220
TCTAGGCTTA ATTTAGGTTT TCGTCCACCT TTTGCGTGTT TAAGTTGATA AGCTGTTTTT	8280
AATACAGCTA ACATCTCTTT AAAAGTCGTG CGCTGAACAC CAACAAGACG CTAAATCGT	8340
GTATCAGTTA ATTGTTTACT TGCTTCATAA TTTGCGAGGG AGTCTATTGA CTCTTTGGTA	8400
GGTGTCAATG TTTTTCAT CTATCCCGAG AATTATTTTC CCGCCATTTG TATTTGCAAA	8460
TGCTGAGTAG GTTTCCGAGA AAGACTCTGG AAGATTCTTT TTAGCTTTTT TGTATTCTAA	8520
ATCAACCCCT TCAAATTTTA AGTCCATATT TTTCTTTAC ATCTGTTTTT TGTGGTCTG	8580
GTATTTGTTT AAGTTGAGTG ATAATATAGC GAATTGAATT TCGAGAGTTT TTAATCAGTT	8640
AATTTCTTTT TTAACCC	8657

## (2) INFORMATION FOR SEQ ID NO: 45:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 11384 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 45:

TCTATTTTGG GTATAGACTT ACCTATAAAG AAAAATATCT ATACACTGCC TTACTAGCTA	60
TACTGAACGA GTCAACAAAA ACGATATATA TTGATGATAT AAATACAGCA AGATTTTTTA	120

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ACTTCTTTGG CAATGATATT CCTAATTCGT CTTTAAAAAA AATTGACTAT ATCGCACCTT	180
CAGAAATTGT TTCATTTAGT ACGTACGTTT GACAACGTTT TAAAGTAATT CCTAAAATTT	240
TGGAACATAT ATTAAAATCA AGTTTTTTAT TAGAGAATAT AGATGTTTCT GTTTACACTG	300
TAAATATTTT AGAAGATCAA TTAACAAAAC ATAGAACAAT CAAAATTAGT AAAAATAAC	360
TGGTTGATCT CATGTATAAA TACCTAACAA AACCACGCGC CTTGCCTGCT GATGGAAAGA	420
AAGGTACAAA TACATGAATA TCAAAGAAAA AATCAAAAAG AATGGCCAAA GAGTTTATTA	480
TGCTAGTGTT TATCTAGGCG TTGACCAACT AACGGGCAAA AAAGCCCGTA CAACTGTTAC	540
AGCAACCACT AAAAAGGGCG TTAAAGTAAA AGCGCGTGAT GCGATCAATA CTTTTCCTGC	600
TAATGGCTAT ACAGTTAAAG ACAAGCCGAC AATTACAACA TATAATGAGC TTGTAAAAGT	660
TTGGTGGGAT AGTTACAAGA ATACAGTTAA GCCAAATACT CGCCAATCCA TGGAGGGATT	720
GGTTAGAGTG CATTTATTGC CTGTATTTGG CGATTACAAG CTATCTAAAC TTACTACGCC	780
TATTCTTCAA CAGCAAGTAA ACAAATGGGC TGACAAGGCA AATAAAGGCG AAAAAGGGGC	840
ATTTGCTAAC TACTCTTTGC TCCATAACAT GAATAAGCGT ATTTTGAAAT ATGGCGTAGC	900
TATCCAGGTA ATACAATACA ACCCAGCTAA TGATGTCATC GTTCCACGCA AACAGCAAAA	960
AGAAAAGGCT GCTGTCAAAT ACTTAGACAA CAAAGAATTA AAACAGTTTC TTGATTATTT	1020
AGATGCTCTG GATCAATCAA ATTATGAGAA CTTATTTGAT GTTGTCTGT ATAAGACTTT	1080
ATTGGCCACT GOTTGCCGTA TTAGTGAGGC TCTGGCTCTT GAATGGTCTG ATATTGACCT	1140
AGAAAGCGGT GTTATCAGCA TCAATAAGAC ACTAAACCGC TATCAGGAAA TAAACTCACC	1200
TAAATCAAGC GCTGTTATC GTGATATACC AATAGACAAA GCCACATTAC TTTTACTGAA	1260
ACAATACAAA AACCGTCAAC AAATTCAGTC TTGGAAATTA GGCCGATCTG AAACAGTTGT	1320
ATTCTCTGTA TTTACGGAGA AATATGCTTA TGCTTGTAAC TTACGCAAAAC GCCTAAATAA	1380
GCATTTTGAT GCTGCTGGAG TAACTAACGT ATCATTTTCAT GGTTCCTGCC ATACACATAC	1440
TACTATGATG CTCTATGCTC AGGTTAGCCC GAAAGATGTT CAGTATAGAT TAGGCCACTC	1500
TAATTTAATG ATCACTGAAA ATACTTACTG GCATACTAAC CAAGAGAATG CAAAAAAGC	1560
CGTCTCAAAT TATGAAACAG CTATCAACAA TTTATAAAAA ATAAGGGTGA CCCATTTCCG	1620
GGCTACCCTC TTACTATACC AAAAATTAGT AGGGGTAGTA AAAAGGGTAT TAAATTATAA	1680
AAAGCACTAA GGGAAAGCGC CCCAAAGTGC TTATTTCAAA GGCTTTATAG CCTATAATCA	1740
CATAAAGAGA TTATTTTTTA AGGTTGTAGA ATGATTTCAA TCCACGATAT TCAGCTACTT	1800
CACCAAGTTG GTCTTCGATA CGAAGCAATT GGTGTATTT AGCGATGCGG TCTGTACGTG	1860



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AAAGTGAACC	AGTCTTGATT	TGTCCTGCGT	TAGTTGCAAC	TGCAATATCA	CGGATTGTTG	1920
AATCTTCAGT	TTCACCTGAA	CGGTGTGATA	CAACAGCAGT	GTAACCAGCT	TCTTTAGCCA	1980
TTTCGATAGC	TTCAAAAGTT	TCAGTAAGAG	TACCGATTTG	GTAAACTTTG	ATAAGGATTG	2040
AGTTAGCAGC	ACCTTCTTGG	ATACCACGTG	CAAGGTAGTC	AGTGTTTGTT	ACGAAGAAGT	2100
CGTCACCAAC	AAGTTGTACT	TTCTTACCAA	GACGTTCACT	AAGAGCTTTC	CAACCATCCC	2160
AGTCGTTTTT	ATCCATACCA	TCTTCAATAG	TGATGATTGG	GTATTTGTTA	ACCAATTCTT	2220
CAAGGTAGTC	GATTTGTTCT	GCAGATGTAC	GAACAGCAGC	ACCTTCACCT	TCAAATTTAG	2280
TGTAGTCGTA	AACTTTACGT	TCTTTATCGT	AGAATTCCTGA	TGAAGCACAG	TCAAATCCGA	2340
TAAATACGTC	TTTACCTGGT	ACATATCCAG	CAGCTTCAAT	CGCAGCAAGG	ATAGTTTCAA	2400
CACCATCTTC	AGTTCCTTCG	AAACGAGGAG	CGAATCCACC	TTCGTCACCT	ACGGCAGTTT	2460
CCAAACCACG	TGATTTAAGG	ATTTTCTTAA	GAGCGTGGAA	GATTTCAGCA	CCGTAACGAA	2520
GGGCTTCTTT	AAATGTTGGC	GCACCAACTG	GCAAGATCAT	GAAGCTTGG	AAAGCGATTG	2580
GAGCGTCAGA	GTGAGAACCA	CCGTTGATGA	TGTTTCATCAT	TGGAGTTGGA	AGAACTTTAG	2640
TGTTGAATCC	ACCAAGATAG	CTGTAAAGTG	GGATTTCAAG	GATGTCAGCA	GCAGCACGAG	2700
CTACAGCGAT	AGACACACCG	AGGATTGCAT	TCCGACCCAA	TTTACCTTTG	TTAGGAGTAC	2760
CGTCAAGTGC	GATCATAGCA	CGGTCAATAG	CTTGTTGATC	ACGTACATCG	TAGCCAATGA	2820
TAGCTTCAGC	AATGATGTTG	TTTACGTTGT	CAACAGCTTT	TTGTGTACCA	AGACCACCGT	2880
AACGAGATTT	GTCACCGTCG	CGAAGTTCAA	CTGCTTCGTG	TTCACCAGTA	GAAGCTCCTG	2940
ATGGAACCAT	ACCACGTCCG	AAAGCACCTG	ATTCAGTGTA	AACTTCTACT	TCAAGTGTTC	3000
GGTTACCGCG	TGAGTCTAGG	ACTTCGCGAG	CGTAAACATC	AGTAATAATT	GACATTTTTT	3060
ACTCTCCTTA	TGAGTTAAAT	TTTTTACACC	TCTATAATAC	CTTAAAACCC	CTCCTTTTTT	3120
AAGAAAAAAC	GTTATCTTTG	TGCAACTTTT	CCTTAACTTT	ATAAAGTAAT	CGCTTCTTTT	3180
TGTCTGTTTT	ATTCTAACTT	TTATGATATA	CTGTTTTCA	GACAGATTTA	TCAAAACAAT	3240
TACTTGAAAA	AGCTCATGGT	GGGTTAAAAA	TAAATCCGGA	TGAGCAAAGA	CGCTATCTTG	3300
GTACTTTTGA	GGAAAGAGTT	CTTGGATATG	TAGATATTGA	CACAGCAAAT	AGCCCTCAGT	3360
TAGAAAAAGG	CTTTTTATTT	ATTTTAGAAA	ACCTTCAGGA	AAAAGCAGAG	CCACTATTTG	3420
TGAAGATTTT	ACCAACTATC	GAATTTGATA	AGCAAGTTTT	CTACTTAAAA	GAAGCAAAAAG	3480
AAACTGATAG	TCAAGCCACC	ATAGTATCTG	AAGAGCATA	TACTTCTCCT	TTTGGCCTGG	3540
TTATTCATAG	CAATGCACCA	GTTCAAGTAG	AAGAAAAAGA	CCTTCGACTT	GCTTTTCCAA	3600
AACTTTGGGA	AGTTAAAAAG	GAAGAACCAG	CCAAAACATC	CTTATGGAAG	AAATGGTTTA	3660

GCTAAATCTT GCACATATTT AATAAGTGCC CAATATTGGC AGCCGTGCGC TCCAGATAGA	3720
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CTTGATATTT TTCAAATGGT AGGGGAGGTA AATCTTCAGC AAGACTACCG CAAATAGCAA	3840
TAACAGGAAC TCCAACAGGG GTTCTTTTTG CAACACCTAT AGGCGCTTTC CCAGCAAAGC	3900
TTTGACTATC AAGTCTTCCT TCTCCAACAA CAACCAAGTC AGCATCTGAA ACTTTCTTAT	3960
CAAAGTTGAT TAAGTCCAAG CAGGTATCAA TTCCAGACAC GATACTTGCC TGAGCAAAGG	4020
CACACAAACC ACCAGCAAGG CCTCCACCTG CTCCTGCTCC TTAAATTTCT AATGTTGCAG	4080
GTGAGAATTT TTCATAAAAA TCTTGGATCG CCTGATCTAC GACTGCAAAC ATAGTCGGAT	4140
GTAGACCTTT TTGATTGCCA AAAGTGTAAG TCGCACCTTG ATGACCACAT AAGGGACTCA	4200
CGACATCTGC TAAAATATGA ATTTGAACAC CTTCAGGAAT TTTATAGCAA TTTTCTGTTG	4260
AAACAGAAGC TAAGTTTAAT AAGGATTGAC CGGAAGCAGG CAAGACATTT CCATCCCTAT	4320
CATAAAATTG ATAACCTAAA CCAGCAGCAA TCCCCAGTCC TCCATCATTG CTGGCCGTGC	4380
CACCAACACC GATATAAATA TCTTTAATCC CTTTAGAGAT GAGATGAAGA ATCAACTCTC	4440
CAATACCACA AGTTTGGATT TGAAGTGGAT TTCGTTTCTC TAGCGGAATT TTTCCAAGAC	4500
CAACCAAGTC AGCTACTTCA AATAGTGCCA GTTCCCCCTT TTGAAAATAG CGCATGGCTT	4560
CTTTTGTGCC AAAAGGGTCT GTCACTTGGA TCCATTTTTC TTTTAGGTCA AGAGAATGTC	4620
GGATAGCATC TACAGTACCT TCTCCCCCAT CACCAACAGG GCAGAGGAGA CATTCTACAT	4680
CTGCTATCGA TTGTTGGAAG CCTCTTTTGA TTGCTTCAGC TACCTGTTGA GCTGTCAAGC	4740
TTCTCTTAAA CGAATCCGGT GCAATTACAA TCTTCATATT TTCCCTCATT CTAAACAGTC	4800
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GAGCACTTCT TTGGCAGAAA AGGCGATTCC TAACTTCGCC GACTTCAACA TTAATAGATT	4920
ATTAACCCCA TCACCGATTG CCACCGTTCT TTCTTTAGAA AGTTTGTAGT TCTTTCTCCA	4980
TTTTTCCAGA GTCTCTTTTT TGACCTGGGG ACTTATAATT TGTCCAACTA ATTTCTCTGT	5040
TAAAAGACCT TCTTTGACTT CAAGCTAGTT GGCAGTGAAA TAGGCAATAC CAAGGGATTT	5100
TGCTAATCTC TCCAATATT GGTGTAAATC CACCAGACAC CAGACCAACT AGGATGCCAT	5160
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CGTTATCAAA GACCAAAATA GGAAGACCTT CCAACAAGGA CACTCTTTTT CTAAACTGC	5280
TTTCAAAGAC CAACTCTCCT CGCATTGCTC GACTTGTAAT CTGCGAAATT TCCGCCTCAT	5340
GACCTGCCTC TCTCCCTAAA AGATCAATCA CTTCTTCTAG GATTAAGGTT CCATCTACAT	5400

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CCAAAACACA	CAAGCCTTTT	ACTTGAGACA	TCAGTTCTCC	TCTCTAAACA	GCCTAAAAAT	5460
CGTATGAAGT	CATCATACGA	TTTTATCTAT	TAATTAAC TA	AACTATGGTA	CAAGTCAAGG	5520
TATGACTTGC	AGGCTGTATC	CCATGAGAAG	TCACTCTCCA	TAGCTTGTTT	TTGTAGGTTT	5580
CTCCAAATGT	CTGGATGGTT	TCTATACAAG	TCCAATGCTG	TTTGAAAGT	CCAATTTAAC	5640
CAATAAGGAG	ATAGATTGTC	AAAGCTAAAG	CCAGTACCGC	TTCTTCGAT	TGGATTGAAA	5700
GCGCGAACTG	TATCTCGCAA	GCCTCCAAC T	TCATGGACCA	ATGGCAAGGT	TCCATAACGC	5760
ATAGCCATCA	TTTGAGACAA	GCCACACGGT	TCAAAACGAC	TTGGCATGAG	GAAGAGGTCA	5820
CAAGCAGCGT	AGATTTCCTG	AGCAAGTTTG	ACATCAAAAG	TGATATTTGT	TGATAGCTTG	5880
TCTGGGTAAA	TCTGAGCAAA	CCATGAGAAA	GCTCCTTCAA	AGGCTGGATC	GCCAGTTCCC	5940
AAAAGAACAA	TCTGAACATC	TTCTTGCAAG	ATATGGTGAA	GACTTTTCGAC	CACCACATCA	6000
AAACCTTTTT	GACGTGTCAA	ACGAGAAACA	ATTCCCACCA	GTGGAACGTC	TGCTCTAACA	6060
GGCAAGCCAA	CTCTTTCTTG	CAATTTTGCC	TTATTTTGG	CTTTCCCAGA	CAAATCTTCC	6120
TGATTGAAAT	GATAGTCTAA	AAGAGCATCC	GTCTGAGGAT	TATAAAGATC	AGCATCAATC	6180
CCATTCACGA	TACCAGATAC	TTTACCAGAC	TCCATTTTAA	GAATCTGATC	CAAATTACAT	6240
CCAAACTGAC	TAGTCATAAT	TTCATGAGCA	TAGCTAGGTG	AAACGGTTGA	AACACGGTTC	6300
GCATAGAGAA	TACCTGCCTT	CATCCAGTTC	AGACAGTTGT	TCCATCGAAG	GGTGCCATCA	6360
GCGTAACGTT	CAAAGCCAAC	TCCAAACAAA	TCACCCAACA	TTCTTCTGA	AAATTGTCTT	6420
TGGAATTCTA	AATTATGAAT	GGTTAAAACT	GTTTCAATGT	CCTCATAGGC	TTGAATCCAA	6480
CGGTATTTTT	CCTTCAACAA	GAAAGGAATC	ATAGCTGTAT	GGTACTCATG	AACATGGAGA	6540
AGATCAGGAA	TAAAGTCAAT	CCTTTCCATA	GCCTCAATGG	CAGCCAGTTG	GAAAAAGGCA	6600
AAGCGTTCTC	CGTCATCAAA	ATCACCGTAA	ACATGACCAC	GGAAGAAATA	ATATTGATTG	6660
TCAATAAAGT	AGAAGGTTAC	ACCATTTAAT	ACTGTTTTCT	TAATTCACA	ATACTGTCTG	6720
CGCCAACCAA	CGCTCACCTC	AAAATGAAGC	ACATCTTCAA	TCTGATTTCC	AAATTTAGCL	6780
TCTACCATAT	CATAGTAGGG	TAAAATCACT	GCAACTTCGT	GCCCAGCTTT	TACCAGTGAT	6840
TTTGGAAGAG	CGCCAATGAC	GTCTCCCAAA	CCACCTGTTT	TTGAAAAGGG	TGCACCCTCT	6900
GCTGCTACAA	ATAAAATTTT	CATGAATGAA	TATCTCTGT	TACTTTAGCA	CCTTTCTTAA	6960
CCACAACTGG	ATGTTCTGCA	GTTCTCGAA	TCACAACACC	ATGCTCAACT	TCAACCCCTT	7020
TGTCCAAGAT	AGCATATTCG	ACCTGAGCCC	CTTCTCCAAT	AACAACACGA	GGGAAGAGCA	7080
GGCTATCTTT	AACCAAGCTA	TCCTTATGGA	CATGAATATT	ACGTGATAGA	ACAGAATTAG	7140
CTACTTGACC	TTCAATAATA	CTACCAGAGG	CAAAC TGAGA	AGTGCTTACC	TTAGATGTAT	7200

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TAGCATAGTA AGTTGGCTCT TCGTTTTTGA CCTTTGTATA AATCTTTTGG TTTGGTGAGA	7260
AAAGAGAATA GAATTTTTGT GATTCAAGCA TATCGATATT CGCTTGATAA TAAGATTTAA	7320
CAGAGTGAAT ATTGGCTAGA TAGCCCGTGT ACTCGTAGGC GAAAGCTCCC TCTTTTACAG	7380
CCAAATCCCG TAAACATAG CGCAATTTCT CTGGATGTTT <u>TTTTTTAGCT</u> TCTTCTTCCA	7440
AGTGTTC AAT CAACCAAGGT GTATCAACGA CAAAGATATC TGTAGACATA TTGAACGTTT	7500
CAGCTGTGGA CTTGCTATCA AAGAGTTTAT GAGAAAGAAC ATGGTCTGTT TCATCTACAT	7560
CCAAGATTGC ATTTACTTCT GAAATATCTT TCTTAGCTAG TTTTTTATAA ACTACAGTGA	7620
TAGGCTCTTT TGTGTACTA TGTAGGTGGA AAAGTTGGTT CAAATCAATG TTAATAAGAA	7680
CATCGCAGTT GAGGGCAACC GTTTGGTTTG AGCCAGAACG TTTCAAATAA GTAAGAAGCT	7740
GTTGGTAGTA TTCTTTTCCA ACTGTACTAC TTTCTACACG GGTATTGTAA ATTCCTAGAT	7800
AGTAATGGCT AAGAAGGGTT GATAAGCCCC ACTCGCGTCC TGAACGAATA TGGTCAAATA	7860
CTGAGCTGAT ATTATCCTGC TGGAAAATAC CAAAGACACT ACGAACACCT GCATTAGCAA	7920
GGCTTGAAAG TGGGAAGTCA ATCAAACGAT ATTTCCCAAC AAATGGCAAA CTTGCTACTG	7980
GACGGTGGTC CGTCAATGTC GACATATTGT GAAAACCAAC TGTATTTCTT AAAATGGCAG	8040
AATATTTATC AATCTTCATC TGTGCTACC CCCACTACTT CATTATATCC TACAACCTGT	8100
ACTTCATCTG TTCCATCAAT TTCGACACCG TCAGAAATAA TCGCACCTTC ACCAATAATG	8160
GCACGTTTAA TCTTAGCTCC TTGACCAATG ATAGCTCCAC TCATGATAAC TGAATCAAGG	8220
ACTTCCGCTC CTTCGCGAAC TTGCGCGCCT GTTGAAAGGA TAGAATGTTT AACAGTTCCA	8280
TCAACGAAAC ATCCGTCTAC AACTAATGAG TCTTCCACAT GAGCATTTGC CCCGAGGAAG	8340
TTTGGTGGTG AAATCAAGTT TCTTGAGTAA ATCTTCCATT GACGGTTACG ACTATCCAAG	8400
GCATTTTCTG GAGAAATATA CTCCATGTTT GCTTCCCAAA GTGACTCAAT AGTACCAACA	8460
TCTTTCCAAT AACCCTAAA TTCGTAAGCA TAAACACTTT CACCTGACTC AAGGTAATTT	8520
GGAATGACAT TTTTACCAAA GTCTGACATG CCAACCTTGC TCTTTTCAGC AGCGACTAAC	8580
ATATTACGAA GCGGTTGCCA ATCAAAAATG TAGATTCCCA TAGAAGCTTT TGTAGATTTA	8640
GGTTGAGCTG GTTTTCTTTC AAATTCAACA ATACGATTGT TAGCATCTGT GTTCATGATA	8700
CCAAAACGGC TTGCTTCTTT AAGAGGGACG TCTAAAACCTG CTAAGTCAA GCTGGCATTG	8760
TTATCCTTAT GAGACTGGAG CATATCATCA TAGTCCATTT TGTAGATGTG ATCCCCAGAC	8820
AAAATCAAGA CATACTCAGG ATTGACACTG TCGATATAGT CGATATTTTG GTAAATAGCG	8880
TGACTAGTCC CCTCAAACCA ACGATTTCTT TCACTTGCAG AATAAGGTTG AAGAATAGAG	8940

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ACACCTGAAT TAATACCGTC TAGTCCCCAG CTTGAACCAT TCCCAATATG GTTGTGAGA	9000
GCAAGTGGTT GATACTGTGT AACGACCCCA ACATTGTGAA TCCCTGAGTT GGCACAGTTT	9060
GATAGGGCAA AGTCAATGAT ACGGTAGCGC CCACCAAATT GCACAGCTGG TTTTGCATG	9120
CTTTGAGTGA GTTTACCGAG ACGAGTTCCT TGCCCACCAG CAAGAATCAA AGCTAACATT	9180
TCATTTTCA TTTTCTACTC CTTTTTGGTT TTTATTTGTG ACGGTTTTAG TAGATTTCAA	9240
GCGACGTTTG ATTTTCATA CACTTGCTCC CATAGCCGGT AGGGTAAAGG TTAAGGCTG	9300
CTCATAATCT TTCCATAGTC CTTCTTGGT TTGAACAGTT TGATTATGTT CTTTCCAAAC	9360
GCCTCCCCAC TCTTCCAACT CAGTATTCCA TACTTCTTCG TAAATTCCTG CAACGGGTAG	9420
TCCGATTGTA AAATCTTTCC GCTCAACAGG TACCATATTA AAGATACAGA CTAACATTTT	9480
TCCCTTTTTA CCCTTACGAA TAAAGGAAAG AACACTCTGG TCTCGATTAT CCGCATCAAT	9540
GATTTCAATA CCATCATAGC TGGTATCAAT TTCCCACAGA CAGCGATGAT CTTTGTAATA	9600
CTGGTTTAGC TGAGAAGCGA AATACTTCAT CTTAGCATTC ATTGGGTCTT CTAGGTTAGA	9660
CCATTCCAAC TGTCTTCAG ATTTCCATTC TAGGAATTGA CCGTATTCGC TACCCATGAA	9720
GAGCAATTTT TTACCAGGGT GACAAATTTG GTACGTATAG AGATTGCGCA AGCCTGCGAA	9780
TTGATTGTAA CGATCTCCCC ACATCTTATG CATCATACTC TTCTTGCCAT GAACCACTTC	9840
ATCGTGCGAG AATGGCAAGA GATAATTCTC CTTGAAAACA TACATAAAGC TGAAAGTCAC	9900
CAGGTAAAG TCATATTTAC GATAGATCGG ATCTTCTTCG TAGAAACGGA GGATATCATT	9960
CATCCAGCCC ATGTTCCATT TGTAGTCAAA TCCTAGACCA CCAATCTCTT TCATTCCCGT	10020
AATCTTGATC GCAGACGAAC TTTCTTCTGC AATCATCATC ACATCTGGAT ATTCTAACTT	10080
AATAACCTCA TTCAAGCGCT GAAGGAAATA ATAACCTTCA TAGTTGAGAT TTCCGCCATC	10140
TTTATTAGGT GTCCATGGAG CATCATCATA GTCCAAATAG AGCATGTTGC TAACAGCATC	10200
CACACGAATA CCATCCAAAT GATAGACATC AATCCAATGC TTAATGCAAG AAATTAAGAA	10260
GGACTGGACT TCATTTTTTC CAAGGTCAAA ATTAAGGGCA CCCCACCAT GGTATGAGC	10320
CTTATTATGG TCTTGGTATT CAAAAGTCGG TGTCCTCATCA TAATAGGCTA AGGCATCATC	10380
GTTGATGGTA AAGTGACTGG TACCCAGTCC ACAATAACCC CAATATTATG GGTATGACAC	10440
TCCTCGACAA AATCTTGAAA CTCCTCTGGT CGGCCATAAG CATGCTCTAA AGCGAAGTAA	10500
CCCATAAGCT GATACCCCA ACTCAAGCCC AAAGGATGGG ACATCAAGGG CATAAACTCA	10560
ATATGAGTAT AGTTCATTTT AACGAGATAA GGAATGAGTT CATCCTTGAG CTGGGCAAAA	10620
CTATAAGGAC TGCCATCAGA ATTTCTTTTC CATGATCCAG CGTGAACCTC ATAAATATTG	10680
ACAGGACGCT CTTCAAAGCC CCAACGTTTT CTTCGTGCCA GCCAAAGTCC ATCCTTCCAT	10740

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TTCTTCTCAG GAAGCTCTGT TACGATTGCC CCTGTTCCCTG GACGAGCCTC ATACCTGACA	10800
GCAAAAGGGT CAATCTTCAT CAGTTGATGA CCATTTTGAC GTGTGACATG ATATTTGTAA	10860
ATATGCCCTT CTTGAGCCAT ATTGGTAAAG ACTTCCCAGA CCCCAAAATC ATTTCTTACC	10920
ATTGGAATCT GATTTTCAAT CCAGTTGGTA AAATCACCAA CCAAGTGAAC AGCCTGAGCA	10980
TTAGGTGCCC AAACACGGAA GGTATAGCCA TGCTCTCCAT TTAGTTCTTC CCTATGTGCT	11040
CCTAGATAAT GTTGGAGATA AAAATTTTCA CCCGTCATAA AGGTTTTTAA TGCTTCTCTA	11100
TTATCCATAT ACTCCCCCTC TCCTGTAAGC GTTTTCTATG TTTTATTAT ACTACCTTTT	11160
TAGAGAAGAT TCAAGTAAAT TACTATACTT CTTTAATTAT TTTGAAAATC TACAACAAGT	11220
TCACCTACTC GTTCAATTGT AAATCAATAT TTTTCAAAA AATTGCGAAA ACGCCTTTCT	11280
TTTTCTACTA TAGTGAAATG AAATAAAACA TCGCAAATC GATTAAGGAA TTAATCTAA	11340
TTTCTAACAA TGTCTTAGAA ATCAAAGTGT ACTATTTTAA CTCC	11384

(2) INFORMATION FOR SEQ ID NO: 46:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 7577 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 46:

TGTTGATTG TTAGTAGACG TTGACCAACG TCCTTCGGCT GGAAAAGGAA TTCTCCTTAG	60
TTTCCAACAC GTTTTCGCCA TGTTGGTGC GACCATCTTG GTACCATTGA TTTTGGGAAT	120
GCCTGTATCT GTTGCCCTTT TTGCTTCAGG TGTTGGAACA CTCATCTACA TGATTGCTAC	180
TGGTTTTAAA GTTCCAGTTT ATCTAGGTTT TTCATTGGCC TTTATCACAG CTATGTCACT	240
GGCTATGAAA GAAATGGGGG GGGATGTATC TGCTGCCCAA ACAGGGGTTA TCTTGACTGG	300
TTTGGTCTAT GTCCTTGTTG CTACCAGCAT CCGATTGTGA GGAACAAAAT GGATTGATAA	360
ACTCTTGCCA CCAATCATT TCGGTCCTAT GATCATCGTT ATCGGTCTTG GACTTGCAGG	420
TTCAGCTGTT ACCAATGCAG GTCTTGTAGC AGACGGAAAT TGGAAAAATG CTCTGGTAGC	480
CGTTGTTACT TTCCTAATTG CTGCCTTTAT CAATACAAAA GGAAAAGGCT TCCTACGAAT	540
CATTCCATTG CTCTTGCCA TTATCGGTGG TTACCTTTTC GCACTAACTC TTGGCTTGGT	600
TGACTTTACA CCAGTTCTTA AAGCCAACTG GTTCGAAATT CCTGGTTTCT ACTTGCCATT	660
TAGCACAGGT GGTGCCTTTA AAGAGTACAA TCTTTACTTT GGTCCAGAAG CCATCGCTAT	720

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CTTGCCAATC GCTATCGTAA CAATTCTGA ACATATCGGA GACCATACTG TTTTGGGTCA	780
AATCTGTGGT CGTCAATTCT TAAAAGAACC AGGTCTTCAC CGTACTCTTC TTGGTGACGG	840
TATCGCAACT TCTGTTCTG CCTTCCTTGG TGGACCAGCC AATACAACTT ACGGAGAAAA	900
TACAGGGGTT ATCGGTATGA CTCGTATCGC TTCTGTCTCA GTTATCCGTA ACGCTGCCTT	960
CATCGCGATT GCCCTCAGCT TCCTTGGTAA ATTCACTGCC TTGATTTCAA CTATTCCAAA	1020
CGCTGTACTT GGTGGTATGT CAATCCTTCT CTATGGGGTT ATCGCCAGCA ATGGTTTGAA	1080
AGTCTTGATT AAAGAACGTG TTGATTTGCG TCAAATGCGA AACCTCATCA TCGCAAGTGC	1140
TATGTGGTT CTTGGACTTG GAGGAGCTAT CCTTAACTT GGTCCAGTTA CACTTTCAGG	1200
TACTGCCCTT TCAGCCATGA CAGGAATCAT CTTGAACCTG ATCTTGCCAT ACGAAAATAA	1260
AGACTAAGAG TCTAAATACA CCTAATCCAC TCAGACAGCT GAGTGGATTT TTCGTATACC	1320
ATAATAAAG TGTCTTAACA AAATTATTAA AATCAAAAAA CGTATAATAT CAGATATTCT	1380
AAAACCTTGA TACTGTACGT TTTATCATAG AAATTTTAC TTTATTTCT CATCAAATGA	1440
GATTTGCATC AATCTCTTGT CTTACTTGCG TTTCTTCTTC GCTTTCTTCA TTTTGTTAGC	1500
CATACGTTTC ATGGACTGTT TCATGGCAAA TTCACCAATT TTACCTTTCA AACCGCCACC	1560
AAACATCTGG CTCATATCTG GCATTCTGC TCCTCCGAGA GCTGATAAGT CAGGCATACC	1620
GCCTTGTCCTC ATCATTCTT CAAGGGCAGA CATATCCATT CCTCCCATAT TTGGCATATT	1680
TTTAGGAAGG TTATTTGGAT TAATCCCAT TTGCTTCATC ATTTTATTCA TATCCCAGA	1740
CATAACACCC TGCATGAGCT GTTTAGCCTG GTTAAAGTCC TTGATGAATT TATTGACTTC	1800
GACGAATGTA TTTCCAGAAC CAGCAGCAAT ACGACGGCGA CGGCTTGGAT TTAACAAATC	1860
TGGGTTTTCA CGCTCTTCAG GTGTATCGA AGACACAATG GCACGTTTAC GAGCAATCTG	1920
GCGTTCATCC ACCTTCATGT TTTGAAGGGC TGGATTGTTG GCCATACCTG GAATCATCTT	1980
GAGCAAGTCT TCCATCGGCC CCATATTTTG CACCTGATCT AATTGATCGA TGAAATCATT	2040
AAAATCAAAG GTGTTTTCGC GCATCTTCTC AGCCATTTCA AGGGCTTTTT GTTCATCGTA	2100
TTCTTGAGAA GCTTTCTCAA TCAAAGTGAG CATATCCCC ATACCAAGGA TACGGCTAGA	2160
CATGCCGTCT GGGTGAAGG TTTCAATGTC CGTAATCTTT TCACCTGTAC CAGTGAAGTT	2220
GATTGGTTTT CCAAGTAATGT GACGAACAGA CAGAGCAGCA CCACCACGAG TATCGGCATC	2280
AATCTTGGTA AGGATGACCC CAGTCACTTC CAACTGAGCA TTAAACTCAC GCGCAACATT	2340
GGCTGCTTCC TGACCAATCA TAGCATCAAC GACAAGCAAG ATTTCATTTG GTTGAGCCAA	2400
TGCTTTCACA TCACGAAGCT CATTCATGAG GAGCTCATCA ATCTGCAAAC GACCCGCAGT	2460
ATCAATCAAG ACATAGTCGT TATGATTAGT TTGGGCTTGC TCCAAACCTT GACGTACAAT	2520

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CTCAACAGCT GGTACTTCTG TTCCAAGTGC AAAGACAGGC ACATCAATCT GTTGTCCTCAA	2580
GGTCTTAAGC TGGTCAATGG CAGCTGGACG ATAAATATCC GCCGCAATCA TCAAAGGACG	2640
AGCATTCTCT TCTTTCTTGA GTTTGTTGGC CAATTTACCA GCAAAGGTTG TTTTACCAGC	2700
CCCTTGTAAG CCAACCATCA TGATGATGGT TGGAATCTTA GGTGACTTGA TAAATTTCTGC	2760
CGTATCAGAA CCTAAAACGG CTGTCAATTC CTCATCAACG ATTTTAATAA TCTGTTGCGC	2820
AGGATTAAAGT GTATCAATGA CCTCATGCCC GACTGCACGC TCACGAACCTT TCTTGATAAA	2880
GTCTTTTACA ACAGGCAAGG CAACGTCGGC CTCGAGCAAG GCCAAGCGAA TTTCTTTGGT	2940
TGCCTCTTGG ACATCAGATT CAGAGATTTT TCCTTTTTTA CGTAGATTTT TAAAGACGTT	3000
CTGCAAACGT TCTGTTAAAC TTTCAAATGC CATTTTCTT CCTCTTATTC TCTATTATCA	3060
ATGCTTGTTA AAATTTCTAT CTGCTCCTGC AGAAAGTCAT CCTTGGGATA GCGCTCCAAA	3120
ATCTGATCAA AAATCTGACT GCGGACAATA TAGTCCGAGT ACATGTGCAA TTTCATCTCA	3180
TAATCTTCCA GAATCTTTTC TGTTGCTTG ATATTGTCAT AGACAGCCTG ACGACTGACA	3240
CCGAACCTCT CGGCAATTC AGCAAGGCTG TAATCATCAG CGTAGTAGAG CTCGATATAA	3300
TTCATTGCT TATCTGTCAA AAGCGCCGCA TAAATTCAA AGAGCGCATT CATACGATTG	3360
GTTTTTTCGA TTTCCATAAC TTTTATTATA CCAAAAATTA GCCTAATCTA CCACACTAGG	3420
AAGCCGATCC AAGAAGATAG ATAGCTAAAT TTGAAAAAGA CATGAGCCTA GCCCAAGTA	3480
ATTTCCAATT GATAGCTGGC AAAGGGATGT CCTCTTGAT TTTGTAGTTG ATAATCTAGT	3540
TCAATCTTTT GCCTATCAAC TTGATAATGG CTCGTTTGA TGATAAACTC CTGCATGCCC	3600
ATAGGTGTAG GAATATAGGC TAACTATCG CTATCCTTA GAAAGCGCAT AATGGTCTTG	3660
GGATTAGAAA ATCGGCTCAT CACAAGTTCT TGACCATGAA ATTTAATCAC TACTTTTTC	3720
TTTTCTCAT TATAGAAAAG CAGGTAGCTA TAATCTCCTT TTTATGCAC TTCCACATCA	3780
TAAAGCTGGT CAATCACTTC CAACTGCTCA TCAAACTGAA TCGTATTTG CATCCGAATC	3840
TTACATCAG GCCCTCTTC TTGTCTCTG TCCTACTATT TTACCAAAAA GAGCAGGATT	3900
TTGCTATAAT GGTCAATGA ACGAAAAAGT ATCCGTGAC CCTGTTTACA ACTACATCCA	3960
TGTCAATAAT CAAATCATCT ATGACTTGAT TAATACAAAA GAATTTTACG GTTTGCGCCG	4020
CATCAAACAA CTGGGAACCT CCACTTATAC CTTCACGGT GGAGAACACA GTCCGTTCTC	4080
TCACGTCTA GGAGTCTATG AAATGACAG ACGCATCACA GAGATTTTCG AAGAAAAATA	4140
TCCTGAGGAA TGGAATCCTG CCGAGTCTCT CTGACCATG ACCGCTGCTC TCCTACACGA	4200
CCTTGGGCAT GGTGCCTACT CCCATACTTT TGAACATCTC TTTGATACAG ACCATGAAGC	4260



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CATTACTCAG	GAGATTATTC	AAAACTCTGA	GACAGAGATT	CACCAAGTCC	TGCTACAAGT	4320
GGCACCTGAT	TCCCCAGAAA	AGGTGGCCAG	TGTCATTGAC	CATACCTATC	CTAATAAGCA	4380
GGTCGTGCAG	CTCATTTCTA	GTCAGATTGA	CGCAGATCGC	ATGGACTATC	TCTTGCGCGA	4440
CTCCTATTTT	ACAGGAGCAT	CCTATGGGGA	ATTTGACCTG	ACTCGAATCC	TCCGAGTCAT	4500
TCGTCCTATC	GAAAATGGTA	TCGCCTTTCA	GCGCAATGGC	ATGCACGCCA	TCGAAGACTA	4560
CGTCCTCAGT	CGCTACCAGA	TGTACATGCA	GGTTTATTTT	CACCCCGCAA	CACGCGCCAT	4620
GGAGATTCTC	CTACAGAATC	TTCTCAAACG	CGCCAAGGAA	CTCTATCCTG	AGGACAAGGA	4680
TTTCTTTGCC	CGAACTTCTC	CACACCTCCT	GCCTTTCTTC	GAAAAAATG	TGACCTTGAC	4740
TGACTATCTG	GCTCTGGATG	ATGGCGTGAT	GAATACCTAC	TTCCAGCTTT	GGATGACCAG	4800
TCCTGACAAG	ATTCTTGCA	ATTTATCGCA	TCGCTTTGTC	AACCGCAAGG	TCTTTAAATC	4860
CATTACCTTT	TCACAAGAGG	ACCAAGATCA	ACTTACTAGC	ATGAGAAAAT	TGGTTGAGGA	4920
TATCGGCTTT	GATCCCGACT	ACTACACTGC	CATTTCATAAG	AACCTTGACC	TCCCTTATGA	4980
TATCTATCGT	CCCGAATCTG	AAAACCCACG	GACACAGATT	GAGATTTTAC	AAAAAATGG	5040
AGAACTGGCC	GAACTCTCTA	GCCTGTCTCC	TATCGTCCAA	TCCCTTGCTG	GCAGTCGCCA	5100
CGGAGATAAT	CGCTTTTATT	TTCCAAAAGA	AATGTTGGAC	CAAAACAGCA	TCTTTGCAAG	5160
CATTACCCAG	CAATTTTATC	ACTTGATTGA	GAACGATCAT	TTTACCCCAA	ATAAAAACTA	5220
GAAGAGGAAA	TTTATGAGTA	TTAAACTAAT	TGCCGTGAT	ATCGACGGAA	CCCTTGTCAA	5280
CAGCCAAAAG	GAAATCACTC	CTGAAGTTTT	TTCTGCCATC	CAAGATGCCA	AAGAAGCTGG	5340
TGTCAAAGTC	GTGATTGCAA	CTGGCCGCCC	TATCGCAGGC	GTTGCCAAAC	TTCTAGACGA	5400
CTTGCAATTG	AGAGACGAGG	GGGACTATGT	GGTAACCTTC	AACGGTGCCC	TTGTCCAAGA	5460
AACTGCTACA	GGACATGAGA	TTATCAGCGA	ATCCTTGACT	TATGAGGATT	ATCTAGATAT	5520
GGAAATCCTC	AGTCGCAAGC	TCGGTGTCCA	CATGCATGCC	ATTACCAAGG	ACGGTATCTA	5580
TACTGCAAAT	CGCAATATCG	GAAAATACAC	TGTACACGAA	TCAACCCCTC	TCAGCATGCC	5640
TATCTTCTAC	CGTACCCCTG	AAGAAATGGC	TGGCAAAGAA	ATTGTTAAAT	GTATGTTTAT	5700
CGATGAACCA	GAAATCTCTG	ATGCTGCGAT	TGAAAAAAT	CCAGCAGAAT	TTTACGAGCG	5760
CTACTCCATC	AACAAATCTG	CTCCTTTCTA	CCTCGAACTC	CTTAAAAAGA	ATGTAGACAA	5820
GGGTTTCAGC	ATTACTCACT	TGGCTGAAAA	ACTCGGATTG	ACCAAAGATG	AAACCATGGC	5880
AATCGGTGAT	GAAGAAAATG	ACCGTGCCAT	GCTGGAAGTC	GTTGGAAACC	CCGTTGTCAT	5940
GGAAAATGGA	AATCCAGAAA	TCAAAAAAAT	CGCCAAATAC	ATCACCAAAA	CAAATGACGA	6000
ATCCGGCCTT	GCCCATGCCA	TCCGAACATG	GGTACTGTAA	AAGTATCATT	TTTCAATAAG	6060

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AATTGATTAG CAATAAAATC CAATGAATTT TTTTAGCAAA CTATTTAATT TAAAACAAAA	6120
TAATCATAAT AGAGACACAA ATTCTGATTG TAACAATTTT TACCTAAACG AATTAGAATG	6190
TGGCCTTACT CCTGGGCAAC TCATACTCAT AGATTGGACT CAAAAAACAG GGAGAAATTA	6240
TAATTTCCCA AGATATTTTA AATACTCTCT TCAAATTGAC CCTGAATCTA CACACAATCA	6300
ATTATACAAA TTAGGATACT TCACTAAAAA TAAGACTTTA TCATATCTTA CAGTAGTAGA	6360
ATTAAAACT ATATTATCTA AACATAATTT AGCTACTTCT GGAAAAAAG CAGAATTAAT	6420
TACAAGAATA ATTAATAATG TTAACATTGA CAATTTAGAT ATTCCGTTTCG AATTTAACT	6480
AACAAAAGAA GCACAAAATC TTATTATCGA ACATAGTGAC TATATCAAAG CATACTATGA	6540
TAAAGACATA ACTATGGAAG ATTATTGTAA AGAAAAAAC AATATCTCTT TTAAAGCAAC	6600
TTTTGGTGAT ATAAATGGA GTCTCTTAAA TAAACAAGCT CATAGGAATA CTGTATCAGG	6660
AGATTTTGGA TGCTTATCTA ACACACGAAA GGCTCAGGGA AGACATTTGG AACAGAAGG	6720
TAATATTAAA CATGCTTTAA TATATTACAT AGAATCTTG ATAATTACTA TTTCAGGATT	6780
AGAAAACAAT TTTTCAGCCA CTGATTATCC AGTATATTAT CCCGATTCTA TACCTGACTA	6840
CTCACTAAAA CATATTCAAA CATTAAATGA ATCATTATCT GATGACGATT ATGATTTTGC	6900
TTTGTATGAA GCATTATTC GCTTCTCAAT TTTGAATGCA AATCATTTTT TATCTAAGGA	6960
AGATATTGAC TATTTAAGAG TTAATTTACC TCGTTCCACT GCTGAAGAAA TAAACAATTA	7020
CTTAAAGAAA TATGAATGTT ATAGTCCTTT AAATAATTTA GAACTTGACG ATTTTGAATA	7080
AATCGACTAT ACAAACATTT ATATACTCGA TATAGTCTCA ATTTTATCTG ATGATTGCCC	7140
AAATTTTTC AATAAAAAC GCATAATATT ATGGAGACAA TCCCCTATAT TATGCGTTCT	7200
TTTAATATCA AAGACTTTTT GACAACTTC TTTGATATCT AATTACATGC CCCCTGCAGG	7260
AATCGAACCT GCAACTACTC CTTAGGAGGG AGTTGTTATA TCCATTGAAC TAAGGAGCT	7320
AGATAAAAAC TCTGCTAAAT GAGCAGAGTT TTTTAGTCGA ATTAACGACC GATTTCTTTG	7380
ATACGAGCTG CTTTACCTTG AAGAGCAGCG AAGTAGTACA ATTTCCGACG ACGTACTTTA	7440
CCGTAACGAA CAACTTCGAT TTTTCAACA CGTGGAGTGT GGATTGGGAA GATACGCTCA	7500
ACACCTACAC CGTTAGAGAT TTTACGAACT GTGTAGTTTT CTGAGATTCC AGCACCTTTA	7560
CGTGCGATAA CAACACG	7577

(2) INFORMATION FOR SEQ ID NO: 47:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 4945 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double

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(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 47:

CCTCGCTGAT GATTGGTGCT GTTTTATTTG CTGGTCCAGC CTTGGCTGAA GAAACTGCAG	60
TTCTTGAAAA TAGCGGAnCT AATACAGAGC TTGTTTCAGG AGAGAGTGAG CATTGACCA	120
ATGAAGCTGA TAAGCAGAAT GAAGGGGAAC ATGCTAGAGA AAACAAGCTA GAAAAGGCAG	180
AAGGAGTAGC GATAGCATCT GAAACTGCTT CGCCAGCAAG CAATGAAGCT GCAACTACTG	240
AAACTGCAGA AGCAGCTAGC GCAGCTAAAC CAGAGGAAAA AGCAAGTGAG GTGGTTGCAG	300
AAACACCATC TGCAGAAGCA AAACCTAAGT CTGACAAGGA AACAGAAGCA AAGCCCGAAG	360
CAACTAACCA AGGGGATGAG TCTAAACCAG CAGCAGAAGC TAATAAGACT GAAAAAGAAG	420
TCCAGCCAGA TGTCCCTAAA AATACAGAAA AAACATTAAA ACCAAAGGAA ATCAAATTTA	480
ATTCTTGCGA AGAATTGTTA AAATGGGAAC CAGGTGCTCG TGAAGATGAT GCTATTAACC	540
GCGGATCTGT TGTCTCGCT TCACGTCGGA CAGGTCATTT AGTCAATGAA AAAGCTAGCA	600
AGGAAGCAAA AGTTCAAGCC TTATCAAACA CCAATTCTAA AGCAAAAGAC CATGCTTCTG	660
TTGGTGGAGA AGAGTTCAAG GCCTATGCTT TTGACTATTG GCAATATCTA GATTCAATGG	720
TCTTCTGGGA AGGTCTCGTA CCAACTCCTG ACGTTATTGA TGCAGGTCAC CGTAACGGGG	780
TTCTGTATA CGGTACACTC TTCTTCAACT GGTCTAATAG TATTGCAGAT CAAGAAAGAT	840
TTGCTGAAGC TTTGAAGCAA GACGCAGATG GTAGCTTCCC AATTGCCCCG AAATTGGTAG	900
ACATGGCCAA GTATTATGGC TATGATGGCT ATTTTCATCA CCAAGAAACA ACTGGAGATT	960
TGGTTAAACC TCTTGAGAA AAGATGCGCC AGTTTATGCT CTATAGCAAG GAATATGCTG	1020
CTAAGGTAAA CCATCCAATC AAGTATTCTT GGTACGATGC CATGACCTAT AACTATGGAC	1080
GTTATCATCA AGATGGTTTG GGAGAATACA ACTACCAATT CATGCAACCA GAAGGAGATA	1140
AGGTTCGGC AGATAACTTC TTTGCTAACT TTAAGTGGGA TAAGGCTAAA AATGATTACA	1200
CTATTGCAAC TGCCAACCTG ATTGGTCGTA ATCCTTATGA TGTATTTGCA GGTTTGGAAT	1260
TGCAACAGGG TGGTTCCTAC AAGACAAAGG TTAAGTGGAA TGACATTTTA GACGAAAATC	1320
GGAAATTGCG CTTTCTCTT GGTTTATTTG CCCAGATAC CATTACAAGT TTAGGAAAAA	1380
CTGGTGAAGA TTATCATAAA AATGAAGATA TCTTCTTTAC AGGTATATCA GGAGACCCTA	1440
CTGGCCAAAA ACCAGGTGAC AAAGATTGGT ATGGTATTGC TAACCTAGTT GCGGACCGTA	1500
CGCCAGCGGT AGGTAATACT TTTACTACTT CTTTAAATAC AGGTCATGGT AAAAAATGGT	1560
TCGTAGATGG TAAGGTTTCT AAGGATTCTG AGTGAATTA TCGTTCAGTA TCAGGTGTTC	1620

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TTCCAACATG GCGCTGGTGG CAGACTTCAA CAGGGGAAAA ACTTCGTGCA GAATATGATT	1680
TTACAGATGC CTATAATGGC GGAAATTCCC TTAAATTCTC TGGTGATGTA GCCGGTAAGA	1740
CAGATCAGGA TGTGAGACTT TATTCTACTA AGTTAGAAGT AACTGAGAAG ACCAAACTTC	1800
GTGTTGCCCA CAAGGGAGGA AAAGGTCTTA AAGTTTATAT GGCATTCTCT ACAACTCCAG	1860
ACTACAAATT CGATGATGCA GATGCATGGA AAGAGCTAAC CCTTTCTGAC AACTGGACAA	1920
ATGAAGAATT TGATCTTAGC TCACTAGCGG GTAAAACCAT CTATGCAGTC AAACATATTT	1980
TCGAGCATGA AGGTGCTGTA AAAGATTATC AGTTTAACCT AGGACAATTA ACTATCTCGG	2040
ACAATCACCA AGAGCCACAA TCGCCGACAA GCTTTTCTGT AGTGAAACAA TCTCTTAAAA	2100
ATGCCCCAGA AGCGGAAGCA GTTGTGCAAT TTAAAGGCAA CAAGGATGCA GATTTCTATG	2160
AAGTTTATGA AAAAGATGGA GACAGCTGGA AATTACTAAC TGGCTCATCT TCTACAACTA	2220
TTTATCTACC AAAAGTTAGC CGCTCAGCAA GTGCTCAGGG TACAACTCAA GAAGTGAAGG	2280
TTGTAGCAGT CGGTAAAAAT GGAGTTCGTT CAGAAGCTGC AACCACAACC TTTGATTGGG	2340
GTATGACTGT AAAAGATACC AGCCTACCAA AACCCTAGC TGAAATATC GTTCCAGGTG	2400
CAACAGTTAT TGATAGTACT TTCCCTAAGA CTGAAGGTGG AGAAGGTATT GAAGGTATGT	2460
TGAACGGTAC CATTACTAGC TTGTCAGATA AATGGTCTTC AGCTCAGTTG AGTGGTAGTG	2520
TGGATATTCG TTTGACCAAG CCACGTACCG TTGTTAGATG GGTCATGGAT CATGCACGAG	2580
CTGGTGGTGA GTCTGTAAAC GATGGCTTGA TGAACACTAA AGACTTTGAC CTTTATTATA	2640
AAGATGCAGA TGGTCAGTGC AAGCTAGCTA AGGAAGTCCG TGGTAACAAA GCACACGTGA	2700
CAGATATCAC TCTTGATAAA CCAATCACTG CTCAAGACTG GCGCTTGAAT GTTGCTACTT	2760
CTGACAATGG AACTCCATGG AAGGCTATTC GTATCTATAA CTGGAATATG TATGAAAAGC	2820
TTGATACTGA GAGTGTCAAT ATTCCGATGG CCAAGGCTGC AGCCCGTTCT CTAGGCAATA	2880
ACAAGGTACA AGTTGGCTTT GCAGATGTAC CGGCTGGAGC AACTATTACC GTTTATGATA	2940
ATCCAAATTC TCAAACCTCC CTGCAACCT TGAAGAGCGA AGTTGGAGGA GACCTAGCAA	3000
GTGCACCATT GGATTTGACA AATCAATCTG GTCTTCTTTA TTATCGTACC CAGTTGCCAG	3060
GCAAGGAAAT TAGTAATGTC CTAGCAGTTT CCGTTCCAAA AGATGACAGA AGAATCAAGT	3120
CAGTCAGCCT AGAAACAGGA CCTAAGAAAA CAAGCTACGC CGAAGGGGAG GATTTGGACC	3180
TTAGAGGTGG TGTCTTCGA GTTCAGTATG AAGGAGGAAC TGAGGACGAA CTCATTGCCC	3240
TAACTCACGC AGGTGTATCA GTATCAGGTT TTGATACGCA TCATAAGGGA GAACAGAATC	3300
TTACTCTCCA ATATTTGGGA CAACCGGTAA ATGCTAATTT GTCAGTGACT GTCAGTGGCC	3360

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AAGACGAAGC AAGTCCGAAA ACTATTTTGG GAATTGAAGT AAGTCTGAA CCGAAAAAAG	3420
ATTACCTAGT TGGTGATAGC TTAGACTTGT CTGAAGGACG CTTTGCAGTG GCTTATAGCA	3480
ATGACACCAT GGAAGAACAT TCCTTTACTG ATGAGGGAGT TGAATTTTCT GGTTACGATG	3540
CTCAAAAGAC TGGTCGTCAA ACCTTGACGC TTCATTACCA AGGCCATGAA GTTAGCTTTG	3600
ATGTTTTTGGT ATCTCCAAAA GCAGCATTGA ACGATGAGTA CCTCAAACAA AAATTAGCAG	3660
AAGTTGAAGC TGCTAAGAAC AAGGTGGTCT ATAACCTTGC TTCATCAGAA GTAAAAGAAG	3720
CCTTCTTGAA AGCAATTGAA GCGGCCGAAC AAGTGTGAA AGACCATGAA ACTAGCACCC	3780
AAGATCAAGT CAATGACCGA CTTAATAAAT TGACAGAAGC TCATAAAGCT CTGAATGGTC	3840
AAGAGAAATT TACGGAAGAA AAGACAGAGC TTGATCGCTT AACAGGTGAG GTTCAAGAAC	3900
TCTTGGCTGC CAAACCAAAC CATCCTTCAG GTTCTGCCCT AGCTCCGCTT CTTGAGAAAA	3960
ACAAGGCCTT GGTTGAAAAA GTAGATTGA GTCCAGAAGA GCTTACAACA GCGAAACAGA	4020
GTCTAAAAGA TCTGGTTGCT TTATTGAAAG AAGACAAGCC AGCAGTCTTT TCTGATAGTA	4080
AAACAGGTGT TGAAGTACAC TTCTCAAATA AAGAGAAGAC TGTCATCAAG GGTTTGAAAG	4140
TAGAGCGTGT TCAAGCAAGT GCTGAAGAGA AGAAATACTT TGCTGGAGAA GATGCTCATG	4200
TCTTTGAAAT AGAAGGTTTG GATGAAAAAG GTCAAGATGT TGATCTCTCT TATGCTTCTA	4260
TTGTGAAAT CCCAATTGAA AAACATAAGA AAGTTAAGAA AGTATTTTTC TTACCTGAAG	4320
GCAAAGAGGC AGTAGAATTG GCTTTTGAAC AAACGGATAG TCATGTTATC TTTACAGCAC	4380
CTCACTTAC TCATTATGCC TTGTTTATG AATCTGCTGA AAAACCACAA CCTGCTAAAC	4440
CAGCACCACA AAACACAGTC CTTCCAAAAC CTACTTATCA ACCGACTTCT GATCAACAAA	4500
AGGCTCCTAA ATTGGAAGTT CAAGAGGAAA AGGTTGCCTT TCATCGTCAA GAGCATGAAA	4560
ATACTGAGAT GCTAGTTGGG GAACAACGAG TCATCATACA GGGACGAGAT GGACTGTTAA	4620
GACATGTCTT TGAAGTTGAT GAAAACGGTC AGCGTCGTCT TCGTTCAACA GAAGTCATCC	4680
AAGAAGCGAT TCCAGAAATT GTTGAAATTG GAACAAAAGT AAAACAGTA CCAGCAGTAG	4740
TAGCTACACA GGAAAAACCA GCTCAAATA CAGCAGTTAA ATCAGAAGAA GCAAGCAAAC	4800
AATTGCCAAA TACAGGAACA GCTGATGCTA ATGAAGCCCT AATAGCAGGC TTAGCCAGCC	4860
TTGGTCTTGC TAGTTTAGCC TTGACCTTGA GACGGAAAAG AGAAGATAAA GATTAAATAT	4920
CGAAAAATCT TGTGAAATCT TTCCG	4945

(2) INFORMATION FOR SEQ ID NO: 48:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 25002 base pairs
  - (B) TYPE: nucleic acid

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(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 48:

GACAACTCAA GTAGCTTTTT CTTATTTTGA AAAAGGAGAT CAGAGTTTAA CTATGTCAGA	60
AAAATCACAA TGGGGGTCGA AACTTGCTTT TATTCTAGCA TCTGCTGGCT GGCCATCGGG	120
CTTGGTTCCG TTTGGAAGTT TCCCTACATG ACTGCTGCTA ATGGCGGTGG AGGCTTTTTA	180
CTAATCTTTC TCATTTCAC TATTTTAATC GGTTCCTC TCCTGCTGGC TGAGTTTGCC	240
CTTGGCCGTA GTGCTGGCGT TTCCGCTATC AAAACCTTTG GAAAACTGGG CAAGAATAAC	300
AAGTACAACT TTATCGGTTG GATTGGCGCC TTGCCCCTCT TTATCCTCTT ATCTTTTTAC	360
AGTGTATCG GAGGATGGAT TCTAGTCTAT CTAGGTATTG AGTTTGGGAA ATTGTTCCAA	420
CTTGGTGGAA CGGGTGATTA TGCTCAGTTA TTTACTTCAA TCATTTCAAA TCCAGCCATT	480
GCCCTAGGAG CTCAAGCGGC CTTTATCCTA TTGAATATCT TCATTGTATC ACGTGGGGTT	540
CAAAAAGGGA TTGAAAGAGC TTCGAAAGTC ATGATGCCCC TGCTCTTTAT CGTCTTTGTT	600
TTTATCATCG GTCGCTCTCT CAGTTTGCCA AATGCCATGG AAGGGGTTCT TTAATTCCTC	660
AAACCAGACT TTTCAAACT GACTAGCACT GGTCTCCTCT ATGCTCTGGG ACAATCTTTC	720
TTTGCCCTCT CACTAGGGGT TACAGTCATG TTGACCTATG CTTCTTACTT AGACAAGAAA	780
ACCAATCTAG TCCAGTCAGG AATCTCCATC GTAGCCATGA ATATCTCGAT ATCCATCATG	840
GCAGGTCTAG CCATTTTCCA AGCTCGATCC CCCTTCAATA TCCAGTCTGA AGGGGGACCC	900
AGCCTGCTCT TTATCGTCTT GCCTCAACTC TTTGACAAGA TGCCTTTTGG AACCATTTTC	960
TACGTCCTCT TCCTCTTGCT CTTCCTTTTT GCGACAGTCA CTTTTTCTGT CGTGATGCTG	1020
GAAATCAATG TAGACAATAT CACCAACCAG GATAACAGCA AACGTGCCAA ATGGAGTGTT	1080
ATTTTAGGAA TTTTGACCTT TGCTTTTGGC ATTCCTTCAG CCCTATCTTA CGGTGTCATG	1140
GCGGATGTTT ACATTTTGG TAAGACCTTC TTTGACGCTA TGGACTTCTT GGTTTCCAAT	1200
CTCCTCATGC CATTTGGAGC TCTCTACCTT TCACTTTTTA CAGGCTATAT CTTTAAAAAG	1260
GCTCTTGCAA TGGAGGAACCT CCATCTCGAT GAAAGAGCAT GGAAACAAGG ACTGTTCCAA	1320
GTCTGGCTCT TCCTTCTTCG TTTCTTCGTT TCGTCATTCC AATCATCATC ATTGTGGTCT	1380
TCATTGCCCA ATTTATGTAA TCAAAAAGGA CTTGAGTAGT GAACTCAGGC CTTTCTTTT	1440
TATGGATGGC TAACAATCAA TTCCAAACCT TGCCCTTCCA GAGTCCAAGC TTCAACATCA	1500
CTTGGTAGGA TAAAGTGGCT GCCTTTTTGA ATTGGATAAT TTTTCCCCTC AACAGTTAGC	1560

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TGACCTTGAC CAGCCAAGAC ACTCAATAAG CTGTAGTCAG CTGTCTTTTC AAAGTCAACT	1620
TTTCCAGTAA TTTCCCACTT GTAAACTGCG AAGAAATCAT TAGATACAAG GAGAGTGGAA	1680
CGCAAATCAT CTGCTTTAAC AGTTACAGGA CGGCTATTTG CTGGCTCACC AATGTTCAAG	1740
ACATCGATGG ATTTTCAAG ATGAAGTTCA CGCAAGTTGC CTTTGTCTATC CTTGCGGTCA	1800
AAGTCATAGA CGCGATAGGT GGTATCGCTA GACTGCTGGG TTTCAAGGAT TAAGATACCC	1860
GCCCCGATAG CGTGCATAGT CCCGCTTGGT ACATAGAAGA AATCTCCAGC CTTAACAGGG	1920
ACTTTGGTCA ACAAGTCATC CCAGTTCTTG TCCTCGATTT GCTGGCGGAG TTCTTCTTTT	1980
GACTTGGCAT TGTGACCGTA GATAATCTCT GAACCTTCAT CCGCTGGGAT AATGTACCAG	2040
CATTCTGTTT TTCCGAGTTC GCCTTCATGC TCGAGTCCAT AAGCATCGTC TGGGTGAACT	2100
TGGACACTGA GCCAGTCGTT GGCATCGAGG ATCTTGGTCA AAAGTGGAAA TACAGTTCTT	2160
GGACGATTGC CAAATAATTC ACGGTGTTCC GCATACAAAG TAGCAAGATC TGTTCCTCTG	2220
TAACGACCAT TGGCAACTTT AGAGACTCCA TTTGGATGGG CTGAGATGGC CCAATATTCT	2280
CCGATTTTTT CACTTGGGAT GTCGTAGCCA AACTCATCAC GTAGCTTGGC TCCACCCCAG	2340
ATTTTTTCTT GCATAACTGA TTGTAAAAAT AATGGTTCTG ACATGTCGAT CTCCTGTCTG	2400
ATTTTTCTCC CCTCATTATA GCAAAAAAAG AGTTCGAATT GAACTCTTTT TTACATCTTA	2460
TAAAGCAGGG AGAAGATTTT ATAAAAATAG TAAACAAATG TGCTCTACCC GATGCTTGCA	2520
CCATTGCTAT AAATGACATC CTGTGTACCA TAGAAGGACT TCTTCTTGCT ACGTTTGAGA	2580
GCTCCGTTTC CTACATTATC TCGATCTACA TAGATAAAGC CATAGCGCTT ATTCATTTC	2640
CCTGTGCCAG CTGAAACCGG ATCGATACAG CCCCAGTCC TATAACCAAG CAAGTCAACC	2700
CCGTCTTGGT AAATGGCATC TCGCATGGCC TTGATGTGGG CCTCTAAGTA AGTAATCCGA	2760
TAGTCATCTG CTACATAACC ATTCTCATCC GGTGTATCCA TAGCACCAG TCCATTTTCT	2820
ACGATAATAC TAACTAAAA TCAAAAAGCA TTATATAATA GTGATATGAA ATCAACTAAA	2880
GAAGAAATCC AAACCATCAA AACACTTTTA AAAGACTCTC GTACAGCTAA ATATCATATA	2940
CGCCTTCAAA TCGTTCTATA GTAAAATGAA ATAAGAACAG TACAAATCGA TCAGGACAGT	3000
CAAAATCGATT TCTAACAATG TTTTAGAAGT AGGGGTGTAC TATTCTAGTT TCAATCTACT	3060
ATATTTCTGC TGATGGGCAA ATCTTATAAA GAGATTATAG AACTTTTATA GTAGTTTGAA	3120
ATAAGATGTG AACAACTCTA TCAGGAAAGT CAAATTAATT TATAGAAATA TTTTAGCAGC	3180
CAAGGTGTAC TGTATAGAT TCAATACACT ATAGACTGTA ATCAAACAAC GATTTGGCGA	3240
AATGTAAAAA AATATGAGGA GTTCGGACTC GACTCTCTCC TTCAAGAAAC ACGTGGTGGT	3300
CGTAACCATG CATATATGAC AGTTGAGGAA GAGAAAGCCT TTCTTGCCCG CCATTTGAAG	3360

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GCTACAGAGG CAGGAGAATT TGTTACAATT GATGCCTTAT TTCAGGCTTA TAAAAAGGAG	3420
TTAGGTCGTT CCTACACACG TGATGCCCTC TATCAACTGT TGAAGCGCCA TGGTTGGCGA	3480
AATATTACGC CACGTCCAGA ACATCCTAAG AAAGCAGACG CTCAAACCAT TGTGCGTCT	3540
AAAAATAAAA TCTCAATCCA AGAAGGCAAG AAAGCGTTT AAATATAGTA GACGTTTTCG	3600
TAAGGTTTGC TTGATGTACC AAGCTGAAGC TGGTTTCGGT AGAATCAGTA AACTGGGATC	3660
TTGTTGGGCT CCAATAGGAG TAGGTCCACA TATCCATAGT CACTATATAC GAGAATTTTCG	3720
CTATTGTTAT GGAGCTGTTG ATGCCTATAC AGGCGAATCA TTTTCTTAA TAGCTGGTAG	3780
ATGTAATACT GAGTGGATGA ACGCCTTTTT AGAAGAGCTT TCACAAGCTT ATCCTTTTAC	3840
TCGTTATGGA CAATGCTATA TGGCATAAAT CAAGTACCTT AAAGATTCCG ACTAATATTG	3900
GTTTTGCATT TATTCCTCCA TACACACCAG AGATGAACCC CATTGAACAA GTGTGGAAG	3960
AGATTTCGTAA ACGTGGATTT AAGAATAAAG CCTTTCGAAT TTTGGAAGAT GTCATGAATC	4020
AACTCCAAGA TGTCATACAA GGATTGGAGA AGGAGGTGAT AAAGTCCATC GTTAATCGGA	4080
GATGGACTAG AATGCTTTTT GAAAGCAGAT GAGTATTATA TGCAATTTCT TTATATAAAA	4140
AGACCGGATT GCTCCGATCT TTCAATAGTT CATATTCTCA ATTTCTATTT TAAAAATAGC	4200
TAAGGTAAAC GTCAAATGAC TACGCGACCT ATTTCTATCG ATAAAAATCA AGCACTAGAC	4260
CAGCAGGTCC TTGAACTAAT AAGGACTCTG TTCCCAATC GGTTACAGTT GGTCCGTGTA	4320
AAACCTTTAT ACCAAGCTCG TTCAACCGTT TGTAGTTCTG GTCTACATCC TCAACCTCGA	4380
TATGAATAAT GATTCTTGAC TGAAAGTTTT CCAAAGGAAC CAAATGATTT TGTGACAACA	4440
TAAGGCAGTG ACTACCAATC GTAAACTGAG CAAAACCATC ATTAGCATAA TCTGCCTTTT	4500
TATCCAAGAT ATGCTCCAAG TCAGCACAGA CTGGGGAAC ATTTGAAACG ATAATATCTA	4560
ATTGATTTAA ATTCATTTAC TCTCCTCCAT AAAAAGACCG GATTGCTCCG ATCTTTTAAA	4620
GTTCTGCTCT ATGAAAATCA AAGAATAAAG TCTACAAGTT TCATATTTGA TTTTCGGCGA	4680
GAGGAATTAT TTAATTGCGC GTGATTGCAA TCCTTCTTCT TCCAAGAAGA GACGGAATGG	4740
TACGAGTTCT TCTGCTTCGT ATTTTTCCTT GAAGGCTTTG ATAGCTTCTT CTGAGTGAAG	4800
TTTTGGATCC AATTCAAGTA CTTCTACTGG AAGTGGACGG TGTGAGTGA TGCGAGCATC	4860
GATGACAACA GTTTTACCTT CTTTGTTCAA TTTAACAGCT TCTGCAACAA CTGCATCGAT	4920
GTCTTCGATA CGGTCAACTG TGAATCCAAC AGCTCCTTGA GCTTCCGCAA TTTTAGCGTA	4980
GTCAGCGTTT GTGAAGTCTA CACCAAACAA GTGTTTGTG GTATCTTCGT ATTTGTTCTT	5040
GATGAAGCCG TACTCAGCAT TTGAGAAGAC AAGGTTGATA ACTGGAAGGT CGTATTGAAC	5100



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GTCTGTGATA ACGTCTGGGT AGCACATGTT GAATGCTCCG TCACCCATGA TGTTCATAC	5160
TTGGCGATCT GGATTGTCTT TCTTAGCAGC GATACCACCA GGAAGGGCAA TACCCATTGT	5220
CGCAAAGAGT GGAGATGTAC GCCACATGTT CTTAGGTGTC ATGTGAAGGT GACGAGTAGA	5280
TGTTTGAGTA GTGTTACCTA CGTCGATTGA GTAGATAGCG TCTTGATCAG CATGTTTGTT	5340
GATTGCATTG TAAACTTGAT ACAATTGCAA TTCACCCTCA GTTTTACCTT CGAGTTTGTT	5400
CATGTAATCA CGCCAGTTT GGTGTTCTT AACGTTTGCA CGCCACCATG GAGTTGATTC	5460
AACTGGGTTT ACTTTGTCAA GGATAGCTTT AGCTGCTTGA CCAGCATCAC CAAGGATTGA	5520
AGCGTCAAGG GCATGACGTT TACCAAGTTT GTAAGGGTCG ATATCGACTT GGATGAATTT	5580
TTCAGTGTTT TTGAATGCTT CGTAACTTC AGCAAATGGG AAGTTTGAAC CAAGGAAAAG	5640
AACTGTGTCT GCTTCAAAGA CCACTTCGTT GGCTGGTTTC CAACCAACAC GGTAAAGCAGA	5700
ACCTGTCAAA CCTTCATAGT TCCATTCGAA AGCTTCAAAG TTTTACCAG TTGTGATGAT	5760
TGGTGCTTTG ATTTTACGTG ACAATTGAGT AATCACTTCA CCAGCTTTAA CACCACCAA	5820
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GTTCCTCATG ATTTCTTGA AACCAGGTT TACTGGAATT TCAACAACAG CTGGACCTTT	6000
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AGCATCCATG TTCAATTCGT TAACTGGACG TGATCCAAGG ATCGCTAGGA ATGGAGTGTT	6180
ATCCATAGCT GCATCGTAAA CACCGTTAAT CAAGTGAGTC GCACCTGGAC CACCTGAACC	6240
AACTGCAACC CCGATTGAGC CGCCGAATTT AGCTTGATA ACCGCTGCAA GAGCACCTGT	6300
CTCTTCGTTG CGAACTTGTA AGAAACGGAT ATCTTTGTCT TCAGCCAAAG CGTCCATCAA	6360
TGAGCTGAGT GTTCCTGATG GGATACCGTA GATTGTATCT ACGCCCCATG TTTTCAATAC	6420
GTTAAGCATT GCTGCAGATG CAGTAATTTT CCTTGAGTC ATAATGATAA CTCTCCTTCA	6480
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TATCCACTG TATCATATTT ATGCTGACTT TTCTAAAAAT CTGCTCAAAA CTCTCTATTC	6600
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CATTACTTTT AGTCTATTTT ACTAAAAAT AACAGAAGGG AACTGGTCAG AACAGATACA	6720
GAACATAAGG CCATGGCTAG ACCTGCCAAT TCTGGGTTGA GAGCCAGTCC AACACCTGAA	6780
AAGACTCCTG CTGCAATCGG AATTCCGACA ACATTGTAGA TAAAAGCCCA GAAAAGATTG	6840
AGTAGAATTC GATGAAAGGT TTTCTTACTC ATATCAAAGG CACGAACCAC TCCTAAAAGA	6900

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TTATTGGTTG TCAACACCAA ATCTGCTGAC TCGATGGCGA TATCTGTTCC AGCTCCCAT	6960
GCAATCCCCA CATCTGCTAC ACTAAGGGCA GGAGCGTCAT TGATACCGTC CCCAACAAAG	7020
GCTACTTTCC CTGACTGTTG CAGTTTATGG ATTTTCATGG CTTTTCTTC TGGCAAGACG	7080
CCTGCAATGA CCTCTTCAAT TCCGATTGA TCTGCAATAG CACGCGCCAC ACCAGCATTG	7140
TCTCCTGTCA GCATGACTGT TCGGAGACCA CGTTTTTTA GCTGACTGAT GGCTAGCTTA	7200
GCATTTTCCT TAGGAATATC TTGCAAAGCA AGCAAGCCTT TGATTTCATT GTCAACAGCT	7260
AAGAACACAA CTGTCTTAGC TTCTTTTTCT AGTCTTCTA GTTATCTTG ATAAGTATTA	7320
GAAATATCCA TGCCATCCAG CATTTTAGCA TTTCCAAGTA AAACCTGTTT TCCATTGATT	7380
CGCCCTGAAA CACCTTTCCC GTGCAAGGAC TGAAAATTTT CAACAGTTTG AAACCAAGT	7440
CCAGCTTCAC TCGCTCGCTT AACGATAGCC TCAGCCAGTG GGTGTTGAGA AGCATCTTCC	7500
AAGGAGGCTG CCAACCCAAA CACTTCTACT TCGTCGCCGA TGACATCTGT TACCACAGGT	7560
TTCCCTCCG TCAAAGTCCC GGTCTTATCA AAGACAAGGG TTTGAACTTT CTGGATTTC	7620
TGTAAGACAG TTCCATTTT GAGGAGAACC CCCATCTTG CACTACGTCC TGCCCCACC	7680
ATAAGGGCTG TCGGTGTTGC AAGTCCCAAG GCACAAGGAC AGCGGATAAT CAAAACCGCC	7740
ACTCCGTAGA GAAGAGAGGA CACAAAGCTA GCTCCAAGCA CAACCACACT ATCCCTGAGC	7800
AAGACGAACC AAACCCAAAA GGTGATGATT CCTAAAATGA CAACTACTGG GACAAAAATC	7860
CCTGAAATCT TATCCGTCAA GTCCTGAATC GCGCACGAC TTGTCTGAGC TTCTTCACA	7920
AAATCCACAA TCTGAGCCAA AACAGTCTCT GAGCCAATT TTTCTGCTCT AAAGACAAGC	7980
GTTCCTACTAT GATTGATGGT TGAGCCAATG ACAGTATCTC CAACTGTCTT GTCCACAGGC	8040
AGACTCTCAC CTGTCACCAT GGATTCGTCA ATACTAGAGA CACCTTCTAC TACGACACCA	8100
TCAACAGCAA TCTTTTCACC GGGACGCACT CGAATCAGGT CGCCTACCTT GACTTGTTC	8160
AAAGGAACTT GGACATAACT ATCATCACTC AAGACTTCTG CGGTTTTAGC TTGCAAGTCC	8220
AGTAATTTCT CCACAGCTTG GGACGTATTT TTTCTCATTT TTTCTCAAA AACTGCTCCC	8280
AAAAGAACGA AAAAGAGGAT AAATCCAGCA CTTTCGAAGT AAACAGGGAG ACCAGCAAAG	8340
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TTGGCATTGT GCTTTTAAA ACTGGCCCAA GCACTCTGGA TATATGGCTT ACCTGCAACT	8460
AACATAATAG GCCTTGTTGC TAGAAAGGTT CCCCAATGCA TGACTTGATG ACTAATGCTA	8520
CCTGTCAACA TCCAATCAT GAGAATCACA AGAGGCACAG TAAAGATACT ACTAATCCAA	8580
AAACGTTGCA GGAGAGATAG AGATTTTCGA GTCTTCTCAA CGACTGTATA GCTTCCCTT	8640

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TGCATCTTCA TGCCACAAGA AAATTCATGT CGCCCTAATT CTTGAGGCGT AAAACGAATG	8700
ACTTTCTCCT CATCTACGCC GATTGGTTCC AAGATACCTT CTTCTTCAAA CAGAAATTCC	8760
TTATAACAGT TTGAAGGAGT AGCACGATGA AAGGTAATCT CAGCTGGAAT TCCCTTTTGA	8820
AGCTGGATAT GGGCTGGATG ATAGCCTTTT TCAGCTCGGA TACGGATTTT TTGAATGCCA	8880
TTTTCTAAGC TTGCTTTCAC AATTTCTGTC ATAGTCTCCA CCTACTCTAC AATCATCTTG	8940
CCGTGCATCA TGTTCATACC ACAAGCAAAG CCAAACCTCT CAGCCTGTTC AGGCGTGATT	9000
TCCACTACAT ACTCTTCCCC CATTGGCAGG TTCGCATGTA CACCAAAATC TGGAAAAACA	9060
ATTTGATCCA GACATGGTGA AGGATCCTTG CGGTCAAAGA CAATGCGTGC TGGCACTGAT	9120
TTCTTGAGGA CAATCAACTC AGGAGTATAG CCTCCCATGA CTTCCACTCG AATCTCTTGG	9180
TATCCGTTTT TTTGCTGGGC TTTTGTGCTA GATTTTTTCT GCTTTTTGAA AAACCAAAAC	9240
AAGATAAACG CGATAAGGGC AATACAAATA ATGGTTACAA TACTATTAA CATGACGTCT	9300
CCTTTACATA CAATTACATC TTACTTCTGT TACAGCACTT GATTTCTTCT CTGAAATCAC	9360
AGCTTCCAAG TCTTCCAAGT CAGTCTGAGT AAATTCACAT TCTACAATCA AGTCAGCCAA	9420
CAAATTCCTA ATCCTACGGG AACAAACCTT GTCTTTGATA TCTTGGACAA GTAAATCCCG	9480
ACTTTGGTCT AGAGTTAAAA GGGCTGAATA AACAAAGGAC TTGCCTTCTT TTTTCCGAGT	9540
CAAACACTCT TTATCAACCA GACGAGCCAA AAGTGTCTGA ACCGTGGACT TGGACCAGTC	9600
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GACTCTTACC AAGCTCTCT TGACGGACGT GGAGATGCCT TTTCAACTGA CAATACGGAA	23820
GTTCTAGCTT GGGCGCTTGA AAATAAAGGA TTTGAAGTAG GAATTACTTC CCTCGGTGAT	23880
CCCATACCA TTGCCGCAGC AGTTCAAAAA GCAACCAAG AATTGCTAGA CTTCTCAAT	23940
AAAGATATTG AAAAATTAGG CAAGGAAAAC TTCTTCCACA AGGCCTATGA AAAGACACTT	24000
CACCCAACCT ACGGTGACGC TGCTAAAGCA GATGACCTGG TTGTTGAAGG TGGAAAAGTT	24060
GATTAGTCAT TAACTCTTAA AAGGAACTGG ATTTTAAAGT CCAATCCCTT TTTAAGATT	24120
TACCTATAAC ATCCTGAGTC TATCTAAGAT GTTCAATCTG AACACAGTGT ACATACTTTA	24180
TCTTCTATTG CATATACTTT ATCACATAAG ATACGAATAT CCTCTTCACT ATGACTAGCA	24240
ATCAAAATTG TTGTCCCTTT TTTACTAGAG AGCTTTCTAA ACAATGTTCT CATATTTTCT	24300
ACACTTGATT TATCCAAGGC ATTCATAGGT TCATCTAGTA AAAGAATAGA GGGATTCTCC	24360
ATAATTGCTT GAGCAATCCC TAGCTTTTTC CTCATACCTA GCGAATAAGT TTTAACTTTT	24420
TGGTCTTTTT GCTCATATAG ACCAACTATT TTCAGTGTAT CATTGATTTC CTGATTACCA	24480
ACTACTCCTC GTATGCTTGC CAAATATTGT AAATTCTTAA AGCCACTATA ATAATTTATA	24540
AAACCAGGTT CTTCAATCAA AGCTCCCAAA TTAGCTGGAA TTTTCTCTC AGGAACAATA	24600

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TTTTCCCAT TGATTAACAC TTCTCCATAA GACGGACTAT ATAAACCAGC TATTAATTTA	24660
AACAATACAC TTTTCCCTGA GCCATTTCGA CCAGTAATTC CTATAATTTT CCCCTGTTTA	24720
CAACTAAAGT TAAGGTTTTG AAAAACACAT GTCTTTTTTA ATTTCAACTC AATATTTTTT	24780
AATGTAATTA TTTCAATCAT TCTATAAACC TCCTCTTTTG ACGAGTGAAA TAGAAAATGC	24840
TTTGAAAAAG AAAGACTAAA AATAGCAACT GAAGAAATAA ATCTCGTCCT ATATCTCCAT	24900
TCCCTCGATT CAAAATATAA AATAGATAAT TAGTTCGATT TCCTACAAAT AGACCACCAA	24960
ACACAATCAT GAGTAAAAAG AAACAAAGC AAGCAAAGTT CG	25002

(2) INFORMATION FOR SEQ ID NO: 49:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 11443 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 49:

CAGGTACGGT GAGGCGCAAC TAAAATATAA TTTTCATCTT GATTAGGAAT TTTATCAGTA	60
TTATGATAGT GAGCATTGCC ATTGATGGAC CATAAGAGCA ATACAATAA TCCACGCAAA	120
TAAGTATAAA ACATGCGATC TCCTTCGATT GTTTTCTTGT TATTATTATA CCTTATCAAA	180
GGAGGGCTGG CAACTTTTC CCTTGACTAG ATACATATTT AGGATGAAAT TAGAATTCTG	240
TTAAAAAAA TGATATAATA GAATTTATGG ATAAAAATAA GATTATGGGA TTAACCCAAA	300
GAGAAGTCAA GGAAAGACAG GCTGAGGGT TGGTCAATGA CTTTACCGCA TCAGCCAGTA	360
CCAGCACTTG GCAAATCGTT AAACGAAATG TCTTTACCTT TTTTAACGCT TTGAACCTTG	420
CCATTGCTTT GGCTCTTGCC TTTGTGCAGG CTTGGAGCAA TCTGGTCTTC TTTGCTGTTA	480
TCTGCTTTAA CGCTTTTTCT GGGATTGTGA CCGAGCTACG AGCCAAACAC ATGGTGGACA	540
AGCTCAATCT CATGACCAAG GAAAAGGTCA AAACCATCCG TGATGGTCAG GAAGTTGCTC	600
TTAATCCTGA AGAATTAGTG CTAGGAGATG TCATTGCTTT GTCTGCAGGA GAGCAGATTC	660
CTAGTGATGC CTTGGTTTTG GAAGGCTTTG CGGAAGTCAA TGAAGCCATG TTAACGGGAG	720
AAAGTGATTT GGTGCAAAAG GAAGTTGACG GCTTACTTTT GTCAGGAAGT TTCCTAGCCA	780
GTGGGTCACT TTTATCTCAA GTTCACCATG TCGGTGCAGA CAACTATGCT GCCAACTCA	840
TGCTTGAGGC TAAGACCGTT AAACCCATCA ACTCCCGTAT CATGAAATCG CTGGACAAGT	900
TGGCTGGTTT TACTGGGAAG ATTATCATTC CTTTGGTCTT GGCTCTCTTG CTGGAAGCCT	960

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TGCTTTTAAA AGGCCTGCCT CTCAAGTCAT CCGTTGTAAA CTCGTCGACA GCTCTTTTGG	1020
GAATGTTGCC TAAGGGAATT GCCCTTTTGA CCATTACTTC GCTCTTGACT GCAGTGATTA	1080
AGTTGGGCTT GAAAAAGGTC TTGGTGCAGG AGATGTACTC TGTTGAGACC TTGGCGCGCG	1140
TGGATATGCT CTGTCTGGAC AAGACGGGTA CCATCACCCA AGGAAAGATG CAGGTGGAGG	1200
CTGTTCTTCC GTTGACGGAA ACGTATGGTG AAGAGGCTAT TGCCAGCATC TTGACTAGCT	1260
ACATGGCCCA TAGTGAGGAT AAGAATCCAA CTGCCCAGC CATTGCGCCAG CGTTTTGTGG	1320
GAGATGTTCC TTATCCTATG ATTTCCAATC TTCCCTTCTC GAGCGACCGC AAGTGGGGGG	1380
CTATGGAGTT AGAAGGCTTG GGGACAGTTT TCTTAGGGGC ACCTGAGATG TTGCTTGATT	1440
CTGAAGTCCC AGAAGCTAGG CAGGCCTTGG AGAGAGGATC ACGTGTCTTG GTCTTAGCTC	1500
TCAGTCAGGA GAAATTAGAC CATCACAAAC CACAGAAACC ATCTGATATT CAGGCTCTAG	1560
CCTTGCTGGA AATCTTGAC CCCATTGAG AGGGAGCAGC AGAGACGCTG GACTATCTCC	1620
GTCTCAGGA GGTGGGACTC AAGATTATCT CTGGTGACAA TCCAGTTACG GTGTCCAGCA	1680
TTGCCCAGAA GGCTGGTMTT GCGGACTATC ACAGCTATGT AGATTGCTCA AAAATCACCG	1740
ATGAGGAATT GATGGCCATG GCGGAGGAGA CAGCTATTTT CGGACGTGTT TCCCTCATC	1800
AAAAGAACT CATCATCCAA ACGTTGAAAA AAGCGGGACA TACAACGGCT ATGACAGGGG	1860
ACGGGGTTAA TGATATCTTG GCCCTTCGTG AGGCGGATTG TTCTATCGTG ATGGCGGAGG	1920
GGGATCCAGC AACCCGTCAG ATTGCCAATC TGTTCTCTT GAACTCAGAC TTAAATGATG	1980
TTCTGAGAT TCTCTTCGAG GGTGTCGCG TGTCGAATAA CATTGCCAC ATCGCCCCGA	2040
TTTTCTTGAT AAAGACCATC TATTCCTTCC TGTTAGCAGT CATCTGTATT GCCAGTGCTT	2100
TACTAGGTCG GTCAGAGTGG ATTTTGATTT TCCCTTCAT TCCGATCCAG ATTACCATGA	2160
TTGACCAGTT TGTGGAAGGT TTCCCACCAT TCGTTCTGAC TTTTGAGCGA AATATCAAAC	2220
CTGTTGAGCA GAATTTCTC AGAAAATCCA TGCTTCGTGC CCTACCAAGC GCTCTCATGG	2280
TCGTCTTCAG CGTCCTGTTT GTGAAAATGT TTGGCGCGAG TCAAGGTTGG TCTGAGTTAG	2340
AAATCTCAAC TCTACTCTAT TATCTCTTGG GGTCAATTGG TTCTTATCC GTATTTAGAG	2400
CCTGCATGCC ATTTACCCTA TGGCGTGTCC TCTTGATTGT TTGGTCAGTA GGAGGTTTCC	2460
TAGCCACAGC TCTCTTCCCA AGAATTCAAA AACTGCTTGA AATTTCAACC TTAACAGAAC	2520
AAACGTTGCC TGTTTATGGT GTCATGATGT TGGTCTTAC CGTGATTTTC ATCCTGACCA	2580
GTGTTACCA AGCGAAAAAA TAAATCAAAA CCACCAGTGT GAACTGGTGG TTTGTTCTGC	2640
GGCTATAAGC CGCTTCTACC GGCCAGGGCC AAAGGCCAC CGAAATAGCT TCCTCGCGCA	2700
CCACTTTCCC GAGCAGGTGC TAAAGCACCT TAGTTACTTC CTCTTATTTA TTTGCGCAGT	2760

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AAACGGATCT ACTGACTCGA ATAACGTGAG CTGGTCTGCT ACTCTGTCTT CTTGTAATTG	2820
ATTCTGAATA TATTCAGCTA TCACCTTCTG ATTACGGCCT ACCGTATCTA CATAATAGCC	2880
TCTACACCAA AACTTGCGAT TGCCATATTT GTATTTTAAA TTCGCATGCT TATCAAAAAT	2940
CATCAAACCTG CTCTTGCCCT TTAATAGCC CATAAAGGAC GAAACACTAA GTTTCGGAGG	3000
AATACTGATA AGCATGTGAA TATGGTCTGA ACAAGCATTG GCTTCATGGA TTATTACACC	3060
CTTACGCTCA CATAAGTCAC GTATGATTCT TCCGATACTA GCTTTGTATC TGCCATAAAT	3120
GATTTGACGA CGATATTTGG GTGCAAAAAC AATATGATAT TTACAATTCC ATGTGGTATG	3180
TGATAAACTT TGATTATCCT CTCTCATGAG GTACCTCCTG TATGATATGT TGTAGTGGCG	3240
GAGAAACCAC TTCTATCTTA TCATTTTAGG AGGTTCTTTT TGTTACCACG CTAAGAGCTC	3300
TATGGAACCA CTAGCATAGC TAGTGGTTTT CGGGAGACAA CAAGAAAGAC TGCAATCTGT	3360
GGATTGCAGT TTTTATACG ATGGATCTAT CGTAGATCTG ATGTGCAAGG CCTACGTGCC	3420
GATCATCTAT CGGTGAACCC AAGAGCGACC CTCAAGCCTG CTTGGATTGA GGTAATAGAT	3480
TCAATATCTT GTAGTTAGAC TATTTGAAGT TTGATGTAAG AAAGAGAAAG CGACAGATTG	3540
AAGTAATTTT AACTCTCTTC TATTGCTAGA ACAAATGGTC GGATAGGTTG GTAGTTTGAA	3600
AATGAAGATG CTATCTATTG TTAATGGAA CATAGTGTTA TTTATTAGAA AATCGTTTGG	3660
TTTATTTCTT ATCAAATACG AAAAGCAACT TAAATATTTT AACTAAAATA GATGTTATGA	3720
AGAAAAGGTA AAATGATTTT GGCATAGTGA GGTCTGTTC TATTTGATAT CATATTTTGT	3780
ATAAAAACAA AAATGTCCAT TGCAAAGGAC AAAATGCGAA GTATATTATT TTTTGAAAGC	3840
GATATAATGG ATTCATAAAG GAGGTGTATC GTGTCTAGAA AACAAGAACA AATGGAAACG	3900
TTGTTGCTCC TTTTGCGAGA TAGTAAGGAT TATATATCTG CTAAAGTATT GGGAGAAAAA	3960
TTAAATTGCT CTGATAAAAC GGTTTATCGC CTTGTCAAGG GAATCAACAA AGATTGTCCG	4020
GTAGAAGCAT TCATTTTATC TGAAAAAGGC AGAGGTTTCA AATTAAATCC AAGAAGTTCC	4080
CTCGTGGACG TTGATGGGAA TTTTACAGAG GCTTTTGATC CTGAAGTAAG GCGTGAAAAA	4140
TTACTAGAAC GTCTCTTGT GACTGCTCCT AAGCCACATT CTATTTATGA TTTAGGAGAG	4200
GAATTCTACG TAAGCGAGTC AGTAGTACTA AAAGATCGTC AGATATTACA AGAGAGTCTA	4260
GCAATTTATG GGTTAGATTT AAAAATGAGA CAACGAAAGC TTTTATTGA TGGGGATGAG	4320
GCTCAAATTC GTTCAGCCAT TCTAAATCTA CTGCCAATGT TTAATCAGTT GGATTAGAG	4380
CAAATTACAC AGAATAAGGT TCAGCCTCTT GACGGAGAAC TTGCTCACTT TTGTTTGGGA	4440
TTACTGATTA CACTTGAGAG AGAATTGGGG GTAAACATTC CCTATCCATA TAATATAAAT	4500

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ATTTTCTCTC ACCTGTATAT TTTTATCAGT AGGAATCGTC GTAGTACTAG TATTCATGTT	4560
GTAGCACCTT CAAAACCTAC TATTGTTGAT GAGAAAATTT ACAGTGTCTG TCAAAAAATT	4620
ATTCAAGAAA TTGAACAATA TTTTAGGATG AAGGTTGATG CAGTTGAGAT TGAATATCTT	4680
TATCAATACG TTGTATCTTC GAGATTGCAA AAACCATTTT CTTCCGGGAA GCTTCCTTTT	4740
TCTCAGCGAG TTTTAGATGT CACTCATTAC TATTTTAGCC GTATGTGTAT GGACAATAGA	4800
GAGATTGAAA CGACAGATCC TGACTTTGTT GACTTGGCGA GTCATATCAG TCCCTTACTG	4860
AGGAGATTAG ATAATAGAGT ACAGATTAAG AATAGTCTTT TATCACAAAT TCTTTTAACC	4920
TATCCTAATC TGGTTAAAGA GTTAACAACT ATTTCTAAAG AAGTGAGTCT AGTATTTGGT	4980
TTTGCTTCCT TGAGTCTGGA CGAGATTGGT TTTCTAGTCT TATATTTTGC ACGGTTTCAA	5040
GAAAAGCGAG CACGTCCTCT AAAAAAGTA GTGATGTGTA CATCAGGTGT CGGAACCTCA	5100
GAGCTTTTAC GAGCACGATT AGAAAAGCAA TTTTCTGAAT TGGATATTAT TGATGTAGTT	5160
GCTTATCATC AATTAGATGA GCTGATAAAT CTATATCCAG ATTTAGATTT CATTGTGACG	5220
ACGGTAGCTT TGCAGGAACC AGCAAGTGTC CCGTTTGTCC TAGTTAGTGT TTTTCTAACC	5280
GAGGGTGATA AACACGCTCT TCAAGCAAAA ATTCAGGAGA TAAACTATGA ATAATCTTTC	5340
GCTTGTCCTT ATGGATATAT CTGTTCAAAA TCGTCAAGAA GCCTACAAAG AATTAGCAAA	5400
TCAAATCAGC CTTCTTGTTT CTGAAGATAC AGAAAAATA GAAGAGCTTC TATATTACCG	5460
TGAGAGACAG GGAAGTATAG AGGTTGCTAA AGGTGTTCTT CTACCACATT GTGAAGGAAA	5520
CTTTCAACAT CATGTCTTAG TGATTACTAG ATTTAAATCA CCTATCAGAG AATGCTCGAA	5580
GGATATCCAG TGTGTTGACC TTATTATCGG TTTGGCCATT GCAGTATCAC AGGACAAGTC	5640
ATGTATTAAA ACATTGATGA GAAGACTAGC AGATGAATCA TTCATAAATC AATTAAAACA	5700
GTTAACAAAA GAAGAATTAC GGGAGATAAT ATATGGAAAT CAAAGATATT CTTAATGTGA	5760
GTCTGATCCA GACGGATTTA CAGATGCAGA GCAAAGAAGA GGTTTTGTAG GCATTAGCTC	5820
AACTATTGGT TGAGACGGGT TATGTGTCTG ATAGAGACCA ATTTATCGAA GGTCTTTATC	5880
AGAGAGAGGC AGAAGGACAG ACCGGTATTG GGAATTATAT TGCTATTCCC CATAGCAAGA	5940
GTTCTGCTGT GGAGAAGGCG GGGGTAGTCA TAGCTATAAA TCACAATGAG ATTCCTTGGG	6000
AGACCATTGA TGGGAAAGGG GTCAAAGTAA TTGTACTCTT TGCAGTTGGT GATGATACAG	6060
AAGCTGCTAG GGAGCATTTG AAGACCTTAT CACTCTTTCG TCGAAAACCT GGTAATGACG	6120
AAGTTGTTGC CAAATTAGTT CGGGCTCAGA CATCTGATGA TGTGATTGCA GCTTTTGTGT	6180
AATAAGAAAA AATTTTGGAG GGTATCCGTA TGAAAATTGT TGGTGTGCA GCTTGTACTG	6240
TGGGAATTGC CCACACTTAT ATTGCACAGG AAAAAATTAGA GAATGCCGCA AAGGTAGCTG	6300

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GACATGTGAT TCATGTTGAG ACTCAGGGGA CAATAGGGGT AGAAAATGAA TTGAGTCAAG	6360
AGCAGATTGA TGCAGCGGAT GTAGTTATTT TAGCAGTTGA TGTTAAGATT TCTGGTATGG	6420
AACGCTTTGA GGGTAAAAAG ATTATCAAGG TTCCAACAGA AGTGGCAGTC AAATCTCCCA	6480
ATAAACTGAT TGCTAAAGCT GTTGAGATTG TTACGAAATA ACTGAAAATA TTTAAGGAGA	6540
AAATATATGT TGAACACCTT AAACCTAAAA GGTCACTTAT TGACAGCCAT TTCTATATG	6600
ATTCCAATTG TTTGTGCTGC AGGATTCTTA GTTGCCATTG GTTTAGCAAT GGGGGGTGGT	6660
GTTCCTGACG CTCTTGTAGC AGGAAAATTC ACTATCTGGG ATGCTTTAGC AACTATGGGT	6720
GGTAAAGCCC TTGGTCTCTT GCCAGTTGTT ATTGCTACAG GTTTGTCTTA CTCGATTGCT	6780
GGTAAGCCAG GGATTGCACC AGGTTTTGTT GTTGGTCTAA TTGCCAATTC TGTGTTTCA	6840
GGGTTTATCG GTGGTATCTT GGGAGGTTAT ATAGCTGGTT TCTTGGTTCA AGCGATTATT	6900
AAAAAGGTCA AAGTACCAA CTGGATTAAA GGTTTAATGC CAACCTTGAT TATTCCTTTT	6960
GTAGCCTCTT TGGTAAGTAG TTTGATTATG ATTTATATTA TTGGAGCGCC TATCGCAGCC	7020
TTTACCAACT GGTGACGAG CTTATTACAA AGCTTGGGAA GTGCTTCAAA TGGTTTGATG	7080
GGGGCAGTTA TTGGAATTCT CAGTGCTGTT GACTTTGGTG GCCCACTTAA TAAAACAGTC	7140
TATGCGTTTG TGTGACTTTT ACAGGCTGAA GGTGTGAAAG AACCATTGAC TGCTTTACAA	7200
TTGGTGAATA CTGCTACACC AGTTGGATTT GGATTGGCCT ATTTTATCGC GAAATTACTC	7260
AAAAAAAATA TCTATACTCA AGAGGAAATC GAAACATTGA AATCGGCTGT TCCTATGGGG	7320
ATTGTCAATA TTGTTGAAGG TGTAATCCG ATTGTTATGA ATAACTGGT TCCAGGTCTC	7380
ATTGCAACAG GTATCGGTGG TGCTGTTGGT GGTGCTGTTT CTTTGACAAAT GGGTGTGAT	7440
TCTGCTGTGC CATTGCTGG AGTGCTTATG TTACCAACCA TGACTCGTCC ACTAGCTGGT	7500
ATTTGTGCCT TGTTAGCTAA CATTGTAGTC ACAGGACTTG TCTACGCGAT TTTGAAAAAA	7560
CCAATAAAAC ATGCAGAACC AGTTATGACT GTTGAAGAAG AGATTGATTT GTCAGATATT	7620
GAAATTTTGT AAGAGGGTAA CGATGTCAAG AATTGAATTT TCACCATCTT TGATGACCAT	7680
GGATTGGAC AAATTCAAAG AGCAGATTAC TTTTGTGAAT GATAAAGTAG CATCTTATCA	7740
TATCGATATT ATGGATGGCC ATTTTGTTC CAATATTACC TTGTCTCCTT GGTTCAATCA	7800
AGAAGTTCAA AAAATTAGTG ACACACCTTT ATCAGTTCAT CTGATGGTCA CAGACCCAAC	7860
CTTTTGGGTA GATCAAGTTC TCGATTTACA ATGTGAGTAT ATTTGTATTG ATGCTGAAGT	7920
TCTGAATGGT CTTGCTTTTC GTTTGATTGA TAAAATTCAT GATGCAGGTC TAAAGGCTGG	7980
TGTTGTCTCTT AATCCTGAAA CACCTGTTTC TACAATCTTT CCCTACATTG ATTTACTTGA	8040



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AGCGGATGCC CGTGAACTC AAGCGGCTTG GCATCATGCC TTGACJAGTA CCACCACTCC	9900
AACTGTCATT GTCTTAACCC GTCAAACTT GGTAGTTGAA GAAGGGACAG ACTTTGGTAA	9960
GGTCGCTAAA GGAGCCTACG TCGTGTATGA TACCCCGGGA TTTGATACTA TTATCATTGC	10020
TACAGGATCT GAGGTCAATC TAGCTATCAA AGCTGCTAAG GAATTGGTTT TACAAGGTGG	10080
TAAAGTACGT GTGGTATCTA TGCCCTCAAC CGAATATTT GATGCTCAAG ATGCTACCTA	10140
CAAGGAAGAC ATTTTACCAT CTAAGACTCG TCGTCGTGTG GCCATTGAAA TGGCAGCGAC	10200
CCAAAGTTGG TACAAGTATG TTGGTTTGGA TGGCGCGGTC ATCGGTATTG ACATCTTCGG	10260
TGCGTCTGCC CCAGCTCAGA CTGTGATTGA TAATTATGGA TTTACGGTAG AGAATATCGT	10320
TGCTCAAGTT AAGTCCCTAT AGAAACCAAT TACAATGAAG ATACAGCTGT TGTCAGACTA	10380
GCAGATGTAG TGATAGACAC TAATCAGATG ATTGGTTATT TAAAACTGT AATGAAAATG	10440
TAATAATTTA TCTACGAAAG TTATAGTAGA TAGTATACAC AATAGAGTAT ACCCTGAAAC	10500
GGTTGCGAAG TACGCTAATC ACTTTGCTAC TGATCTAGAT AGTTTCTTTA ATCAATAAAC	10560
ACAGCATCCA CAGATTGACT TAGGATATTG TAAGTTTTTT GAAAGCTAGA GAGAAGGTCT	10620
CTAAAATTAA AAAACGCATA GTATAGGATG TTGAAATGAT GAACTGCACC CAAAAGTTA	10680
GACAGAAAAA AATCTAACTT TTGGGGTGTT TTTATTATGA AATTAACTTA TGATGATAAA	10740
GTTCAAGTTCT ATGAACTTAG AAAACAAGGA TATATCTTAG AGAAGCTTTC AAATAAATTT	10800
GGGATAAATA ATTCTAATCT TAGGTACATG ATTAAATTGA TTGATCGTTA CGGAATAGAG	10860
TTCGTCAAAA AAGGGAAAAA TCGTTACTAT TCTCCTGATT TAAAACAAGA AATGATTCAT	10920
AAAGTCTGAC ATGAAGCCTG GACTAAAGAT AGAGTTTCTC TTGAATACGG TCTCCCAAGT	10980
CGTACGATAC TTCTTAACTG GCTAGCACAA TACAGGAAAA ACGGGTATAC TATTCTTGAG	11040
AAAACAAAAG GGAGAGTACC TGAGAGCGGA GAATGCCATC CTAaaaaaAGT TAAGAGAACT	11100
CCGATTGAAG GAGGAAAAAG AGAAATAAGA AAGACAGAAA TTGTTCAAGA ATTAATGACT	11160
GAGTTTTCGT TAGATCTTCT TCTAAAAGCC ATTAACTAG CTCGTTGGAC CTACTACTAT	11220
CACCTGAAAC AGCTAGATAA ACCAGATAAG GACCAAGAGC TTAAAGCTGA AATCAATCC	11280
ATCTTTATCG AACACAAGGG AGATTATGCT TATCGCCGGG TTCATTTAGA ACTAAGAAAT	11340
CGTGCTTATC TGGTAAATCA TAAAAGAGTT CAAGGCTTGA TGAAAGTACT CAATTTACAA	11400
GCTAGAATGC GACAGnaacc AAAATATTCT TCTCATAAAG GAG	11443

(2) INFORMATION FOR SEQ ID NO: 50:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 5338 base pairs

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(B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 50:

CCAATTACAT TATATTATCA AAATCGTCGA AACTGGCTCC ATGAATGAGG CAGCCAAGCA	60
ACTCTTTATC ACTCAGCCAA GTCTCTCCAA TGCAGTCCGA GATTTGAAA ATGAAATGGG	120
CATTGAGATC TTTATCCGCA ATCCCAAGGG AATCACCTTG ACCCGTGATG GCATGGAGTT	180
TCTCTCTTAT GCCCCTCAGG TTGTCGAGCA GACCCAGCTT CTGGAGGAAC GCTATAAAAA	240
TCCTGTCGCC CACCGCSAAC TCTTTAGCGT TTCGTCTCAA CACTATGCCT TTGTGGTCAA	300
TGCTTTTGTC TCTTTGCTCA AGAAAAGCGA TATGGAGAAA TACGAACTCT TCCTTCGTGA	360
AACTCGGACT TGGGAGATTA TCGACGACGT CAAGAACTTC CGCAGTGAGG TCGGGGTCCT	420
CTTCTTAAAC AGTTACAACC GTGATGTTTT AACCAAGATG CTGGATGACA ATCACCTGCT	480
AGCCCACCAT CTCTTCACAG CGCAACCGCA TATCTTTGTC AGCAAGACCA ACCCTCTGGC	540
AAAGAAAGAC AAGGTGAAAC TGTCTGATTT GGAGAATTTT CCTTACCTCA GCTATGACCA	600
AGGGACGCAC AACTCCTTCT ACTTTTCAGA AGAGATTCTT TCTCAAGAAC ACCACAAGAA	660
ATCCATTGTG GTCAGTGACC GTGCCACCCT CTTTAATCTC TTGATTGGTT TGGATGGTTA	720
TACCATTGCG ACAGGGATTT TGAACAGCAA CCTAAACGGA GACAATATCG TTTCTATCCC	780
ACTGGATATT GATGACCCGA TCGAGCTGGT CTATATCCAG CATGAGAAAA CCAGCCTATC	840
TAAGATGGGC GAACGCTTTA TAGACTATCT CCTAGAAGAA GTTCAGTTTG ATAGTTGAGA	900
AATGATAAGA ACCAATATGT AGGCTAGCAA CAACCTGCAC ATTGGTTCTT TTTACTTATA	960
ATTAAAGTT TCCCCTGCCA ACTTATCAGC TAGCTTGGGA AAGAGAGTAT AAAACTTATG	1020
GGCTAGGTTT AACAAAATCG GGAGATTGAG TTCTCGTTTG TTTTTCCTA TAATCTTGAC	1080
AATCTTTTTA GCCACTGCAT CTGGTTCTAG CAGGAAGCGA TCAACCGATT TAAGATAAGT	1140
TCCATCTGGG TCGGCTTGGT CGAAAAATCC TGTACGGATT GGTCTTGGAT TGAATGTTGT	1200
CACATAGACT CCATAGGGCA TAAGTTCGAG TCGCAGAGCA TTTGAAAAAC CAATAGCCGC	1260
AAACTTGGTC GCTGAGTAAA GACTAGACTT GCCAGTAGCT ATTAGACCTG CCATGCTGAC	1320
GATGTTGATG ATATGCCCTT TGCTGCTTTC CTTTATACGA GCCGCAAGGT GACGAGACAG	1380
ATTCATCAGG GCAAAGGTAT TGACCTCAAA CATCTGGTGA ATATCTTTAT CAGCAATCTG	1440
GTCAAATCCC TCAAAAATCC CGTAACCAGC GTTGTTAATC AAGACATCAA TCTTGCCATA	1500
GCGGAGATAA AGATCAGTTA CCAGAGCTTC TAGGGCTGAA TCGTCGGTAA TATCAATTTT	1560

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AATCAATTCT GCATGGGAAT AATTTCGGTA GAGTTGGGCT AATTTTCTCT TATTTCTACC	1620
AAGCAAGATG AGTTGGTCAT TGGGCAGGAG TTTGACCATT TCTTGAGCTA GACCACCGCT	1680
AGCTCCGGTA ATGAGAATAG TAGGCATACT TATCCTTTCT GTGACTGCTA GATTTCCACT	1740
TCTTCCAAGT CTTTGACCAC ATGGACATTT TCAAAAATTG TGGCAGCGTC TTTCTTGAGT	1800
TTGCTAATAT CTTTGTAGAG GAAACGGGCA CTGATATGGT TGAGTAGGAG GCGTTTGGCA	1860
CCTGCTTCTA CCGCTACTTG TGCAGCTTGC ATATTAGTTG AGTGACCATG GTTACGAGCA	1920
ATTTTTCAT CACCCTTGCC ATAAGTGGAC TCATGAAC TA GGACATCTGC ATTGACAGCC	1980
AGACGCACAC TGGCACCCGT TTTTCGAGTG TCTCCTAAAA TACTGATAAT CTTACCTGGA	2040
CGTGGCGCTG AGATATAGTC TGCTGCCTTG ATTTCAAGTTT CGTCTTCCAA AACAAAGATCC	2100
TGGCCGTTTT TGATTTTACC AAAAAGCGGG CCGAACGGAA CACCAGCAGC CTTGAGTTTT	2160
TCAGCATCCA GCCTCCCTTC TAGATCCTTT TGCATGACAC GATAGCCAAC ACAGAAAATA	2220
GTGTGGTCCA GCTCCTCTGC ATACACAGTG AATTTATCGG TTTCAAGAAT TTTACCCAGA	2280
GAATCTTGGT CAAACTCATG GAAATGAATG CCGTAGGGCA GACGAGAACC TGACACACGA	2340
AGGCTGGTTA AGACAAATGA CTTGATTCTT TGAGGTCCGT AGATTTCCAA ATCTGTCTGC	2400
TCTTCATTGG CCTGAAAGGC ACGGCTAGAA AGGAAACCTG GCAAACCAAA AATGTGGTCT	2460
CCATGCAGAT GGGTAATAAA GATTTTGTCT ACCTTACGTG GTCGAATTGT GGTTTCCAGA	2520
ATGCGATTTT GCGTACCTTC TCCACAGTCA AAGAGCCAAA CTTCTGTTAAT CTCATCCAAA	2580
AGTTTCAGGG CGAGACTTGA AACGTTGCGG GCTTTAGAGG GCTGACCAGC CCCCCTTCCT	2640
AAAAATTGAA TATCCATTCT ATACTTTCTA ATTAATCAAT ATATAACATG GCTGTGCGGT	2700
TTTCCGATCG GAAATAGCGT TTGCCAGAAA AAGCAGCAGC TTCTTGCAAT AAATCCTCTT	2760
GGCTGTAGCC TTTGAGACGT TTTGACCAT CAGCCAATCT TTCCAAATCA GTCAAAGCTC	2820
TGAGACTTTC TAGGCTGATA ACTTCCTCGT CCTCGACAGG CTTCAATGTA ATCTTACCAG	2880
ACTCTTCAA GACTAATTGA TGGGGGAAAA TTTGCGCAAT TTCAAAGAGC AAGTCATCCG	2940
AGATTTTCTC CTCATTTTCA AAGAAAATCC GACCAAGGCC GTCACCTCTA TAACAAAAAC	3000
CAAAGGATTT ACCAGACAGA TTAAGCCGAA TAAAAGGCTT ATTTTCTAGG GTGAAACTTG	3060
GCTCAGTATT GTAAAGATTC AGTTCTGAC TGAGTTCTGC AAAATAATCC GTCGCAGCCT	3120
GAGGACTCTT TTTCTGATAG AGTTCTGCAA AGTAGGCATT AACAACACTT GCGGAGGTG	3180
TAATAAGTGT TAACTGCTCC TGATCTGTTT TACCAGCTAG AAGCTGATCC AGATAGACCT	3240
TGTCCAGACT TGTATAACCT CCATACCTTA GAGCCAAAGT TTTAATATCA GTCATAAAAT	3300

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TCTTCTAACC TCCATTTATT TTTCTCGGAA ATGTAGCCTG TAATCTTTC GCCGTCTTCC	3360
TGATAATCAC GTTCTTCCAG AATTGCAACA CTCTCTAAAT CATGAATCTT GTAGGACTTT	3420
GAAAAAGGCA CTCGCAGGGT AAATGCTTCA AAAATTTCTT TAATCTTATC TAGCAATAAT	3480
GCTTGCAAGT TTTACGACT GTCCTCAGAC TTGGCAGAAA TGAGGGTATA TGGCGTTTGG	3540
GTAGGCGTGA AATCCTCCAC CAAATCCGCT TTATTATAAA GCGTCAAGTG AGGAATATCT	3600
TCCATGTCCA GGTCTTTCAT GATGGAGAGA ACCGTTTTTT CATGCTCCTC GTGGTAAGGA	3660
TTGCTAGCAT CGATAACATG AACCAGAAGG TCCACATGCT TGCTTTCTTC CAAGGTTGAC	3720
TTGAAACTGG ACACCAACTC TGTCGGCAAA TCTTGGATAA AGCCAACGGT ATCTGTCAAA	3780
GTTACTTGA GATTGCCTCC CAGATGAATA CTCTTGGTGT TCGCATCCAG AGTCGCAAAG	3840
AGCTCATCTG CTTCACTACTG GGTCTTACTG GTCAAGATGT TCATGATAGT TGATTTCCCA	3900
GCATTAGTAT AACCAATCAA ACCAATCTTA AAAGTGCTAG ACTCCAAACG TTTTCTCTG	3960
ACAGTCGCAC GATTTTCTC AACCACCTTG AGCTGGCGCT CGATATCCGT GATTTGATTG	4020
CGAACGCTAC GACGGTTCAG CTCCAGCTGG CTTTACCAG GACCACGGGA ACCAATCCCC	4080
CCTGCTGAC GGCTGAGCAT AATCCCTGA CCAACCAAGC GAGGCAAAAG GTATTTGAGT	4140
TGGGCTAGGT GGAATTGGAG CTTCCCTTCA TGGCTTCGAG CCCGCATGGC AAAGATATCC	4200
AAAATCAACT GCATACGGTC AATGACCTTA ACACCGAGAA CTTCTCTAG ATTGACATTC	4260
TGCCTTGGGG TCAGACGATT GTTGACGATG ACAGTAGTGA TTTCTTCTGC ATCCACCATA	4320
AGCGCAATCT CTTCCAACTT ACCAGAGCCG ACGAAGGTCT TGGAAATCATA TTTTTCACGT	4380
TTTTGTCTGT AGCTATCTAC AACGACTGCC CCTGCCGTTT TCGCTAAACT AGCCAATTCT	4440
TCCATGGAGA GGTCAAACT GTCCATACCC TGCAATTCCA CACCAATCAG CAGGACTCCG	4500
TCCTCTTTTT TCTCCGTTTC AATCATCTAA AAACCTCTCT ATCTGGCTTA AAAAGCGGTC	4560
TTGTACACCA GATTCTCCAA TCTGATAAAA GGTGACCTGC ATGCGATTAC GGAACCAGGT	4620
CAGCTGACGC TTGGCAAAAC GACGAGTCGC CTGTTTAAGA CTCTCACTAG CTTCTCCAA	4680
GGTCTGCTCT CCACGAAAT AAGGAAAGAG TTCCTTATAG CCAATTCCTT TAGCAGCCTG	4740
TACATTAGGG GAATGGTCAA ACAGCCACTT GGCCTCATCC AAAAGCCCAG CCTCAAACAT	4800
CAAATCCACT CGGTGGTTGA TACGCTCATA AAGTTGACTA CGTTCATCAT CCAAGCAGAT	4860
AATCAGCGGT TCATACAAGG TCTCTTGATT TTCCAAATCC TGACCAAAAT GGGCAATTTC	4920
TAAGGCACGC ATAGCACGAC GACGATTAAA CTGGGGAATC TCAAGGCCTG CTTGATCCAC	4980
CAAATGGGCT AATTCCTCAT CTGAATATGG CTCCAACTA GCTCGATAAG CTAAAATCTC	5040
CTCATGAGGA GTCTCCCCAC CTAGGTGGTA ACCTTCTAGC AAGCTCTGGA TATAAAGTCC	5100

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AGTCCCACCG GCGATAATGG CTAGCTTGCC ACGGTTGTGA ATACCCTCAA TAGTCATCTT	5160
AGCTTCTGAA AAAAAATCAA AAGCCGAGTA AGACTCGGTT ATCTCTCTAA CATCGATTAA	5220
ATGATGAGGA ACAGCTGCCT GCTCTTCTGG ACTAGCCTTG GCCGTCCCAA TATCAAGTCC	5280
TCGATAGACT TGCTGGCTAT CTCCACTAAC CACTTCGCCA TTAAAACGCT TTGCGGGG	5338

## (2) INFORMATION FOR SEQ ID NO: 51:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19446 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 51:

CGGAAACCCA TCTAGTCTCC ATCGTTTGGG AGACCAAGCA ACACGAATCT TAGATGCTTC	60
TCGCCAACAG ATTGCAGATT TAATCGGTAA GAAAAGCGAT GAAATCTTCT TTACCTCGGG	120
TGGAACAGAA GGGGATAACT GGCTTATCAA GGGTGTGGCC TTTGAAAAAG CTCAGTTTGG	180
CAAGCACATC ATTGTTTTCAG CCATTGAACA TCCAGCAGTC AAAGAGTCAG CCCTCTGGTT	240
GAAAAGTCAA GGATTTGAAG TGGATTTTGC TCCAGTTGAT AAGAAAGGCT TGGTCGATGT	300
TGAGGCGTTA CAGGTTTGAT ACGGCATGAT ACAATCCTCG TTTCCATCAT GGCTGTGAAC	360
AATGAAATCG GCTCTATCCA ACCTATTGAG GCTATTTTCAG AATTCTTGGC AGACAAGCCG	420
ACTATTTCTT TCCACGTTGA TGGCGTTTCAG GCGCTTGCCA AAATTCGGAC TGAAGATAT	480
CTGACAGAAC GGGTGGATTG CGCGACTTTC TCTAGTCACA AGTTCCACGG GGTTCGAGGT	540
GTTGGCTTTG TCTATATCAA ATCTGGCAAG AAGATTACAC CTCTTCTTAC AGGTGGTGGC	600
CAGGAGCGAG ATTATCGTTC GACAACTGAA AATGTGGCAG GGATTGCAGC GACAGCCAAG	660
GCCCTCCGTT TGTCTATGGA AAAGCTAGAT ATCTTTAGGA GCAAGACTGG GCAGATGAAG	720
GCAGTGATTC GCCAAGCTCT TCTGAACTAT CCGGATATTT TTGTCTTTTC AGATGAGGAA	780
AACTTTGCAC CTCATATTCT GACTTTTGGG ATCAAAGGTG TTCGAGGTGA AGTCATCGTT	840
CACGCCTTTG AAGACTATGA TATTTTCATC TCAACAACCT CAGCTTGTTT ATCTAAGGCA	900
GGAAAACCAG CCGGTACCTT GATTGCCATG GGAGTGGACA AAGATAAGGC CAAGTCAGCT	960
GTGCGTCTTA GCCTAGACTT GGAAAATGAT ATGAGTCAGG TCGAGCAGTT TTTGACCAAG	1020
TTAAAATTGA TTTACAATCA AACTAGAAAA GTAAGATAGG AGCATTCATG CAGTATTCAG	1080
AAATTATGAT TCGCTACGGA GAGTTGTCAA CCAAGGGTAA AAACCGTATG CGTTTCATCA	1140

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ATAAACTTCG TAATAATATT TCGGACGTTT TGTCTATCTA TACCCAAGTT AAGGTAACAG	1200
CAGATCGCGA CCGTGCCAC GCTTACCTCA ATGGAGCTGA TTACACAGCA GTTGCAGAAT	1260
CTCTCAAACA AGTTTTTGGA ATTCAAACT TTTCTCCTGT TTATAAGGTT GAAAAATCTG	1320
TAGAAGTTTT GAAGTCTTCT GTCCAAGAGA TTATGCGGA CATCTACAAG GAAGGTATGA	1380
CCTTTAAGAT TTCTAGCAAG CGTAGCGACC ACAACTTTGA ACTTGATAGT CGTGAACCTCA	1440
ACCAAACACT TGGAGGGGCT GTATTGGAAG CCATTCCAAA TGTGCAAGTT CAAATGAAAA	1500
GTCCTGACAT CAATCTTCAG GTGGAGATTC GTGAAGAAGC AGCCTATCTT TCTTATGAAA	1560
CCATTCGTGG GGCTGGTGGT TTGCCAGTTG GAACTTCAGG TAAAGGGATG CTCATGTTGT	1620
CAGGAGGGAT TGA CTCACCT GTAGCAGGTT ATCTTGCTCT TAAGCGTGGG GTGGATATCG	1680
AGGCAGTTCA CTTTGCTAGT CCACCATATA CTAGTCCTGG TGCCCTCAAG AAAGCGCAGG	1740
ACTTGACCCG TAAATTGACC AAGTTTGCGG GAAATATCCA GTTTATAGAG GTGCCTTTCA	1800
CAGAGATTCA AGAGGAAATC AAAGCCAAAG CGCCAGAAGC TTATTTGATG ACTCTAACTC	1860
GTCGCTTTAT GATGCGGATT ACTGACCGTA TTCGTGAGGT ACGAAATGGT TTGGTTATCA	1920
TCAATGGGGA AAGTCTAGGT CAAGTAGCCA GCCAAACCCT TGAAAGTATG AAGGCTATCA	1980
ATGCTGTTAC CAACACTCCC ATCATTCGTC CTGTGGTTAC CATGGACAAG TTGGAAATCA	2040
TTGACATCGC CCAGGAAATC GATACCTTTG ACATTTCAAT CCAACCGTTT GAAGACTGTT	2100
GTACCATTTT TGCACCAGAT CGTCCAAAA CAAATCCTAA AATTAAGAAT GCGGAGCAGT	2160
ACGAAGCGCG TATGGATGTT GAAGGCTTGG TTGAGCGAGC AGTGGCTGGA ATCATGATTA	2220
CTGAAATCAC ACCTCAAGCC GAAAAAGATG AAGTTGATGA CTTGATTGAC AATCTGCTCT	2280
AATTCAGAAA ATCCAAAAGA ATAGCGAAAA TCAGTAAAAA AAGTTAGTTT TTTCTCTAAA	2340
AACAGGTAAA AACTAACTT TTTTATTTT TATGATATAA TGATATAAAA TTTTGAATA	2400
AGAGAGTTT CTGACAAATG ATCAATCCTA CTTTATCTA AAAATGAAAG AACACAACT	2460
CAAGGTTCTT TATACAGGTA AGGAGCGCCG TGTACGTATT CTTCTTCCTA AAGATTATGA	2520
GAAAGATACA GACCGTCTCT ATCCTGTTGT ATACTTTCAT GACGGGCAAA ATGTTTTTAA	2580
TAGCAAAGAG TCTTTCATTG GACATTCATG GAAGATTATC CCAGCTATCA AACGAAATCC	2640
GGATATCAGT CGCATGATTG TCGTTGCTAT TGACAATGAT GGTATGGGGC GGATGAATGA	2700
GTATGCGGCT TGGAAGTTC AAGAATCTCC TATCCAGGG CAGCAGTTTG GTGGTAAGGG	2760
TGTGGAGTAT GCTGAGTTT TCATGGAGGT GGTCAAGCCT TTTATCGATG AGACCTATCG	2820
TACAAAAGCA GACTGCCAGC ATACGGCTAT GATTGGTTCC TCACTAGGAG GCAATATTAC	2880
CCAGTTTATC GGTTTGGAAT ACCAAGACCA AATTGGTTGC TTGGGCCTTT TTTTCATCTGC	2940

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AAACTGGCTC CACCAAGAAG CCTTTAACCG CTATTTGAG TGCCAGAAAC TATCGCCTGA	3000
CCAGCGCATC TTCATCTATG TAGGAACAGA AGAAGCAGAT GATACAGACA AGACCTTGAT	3060
GGATGGCAAT ATCAAACAAG CCTATATCGA CTCGTCGCTT TGCTATTACC ATGATTTGAT	3120
AGCAGGGGGA GTACATCTGG ATAATCTTGT GCTAAAAGTT CAGTCTGGTG CCATCCATAG	3180
TGAAATCCCT TGGTCAGAAA ATCTACCAGA TTGTCTGAGA TTTTTCGAG AAAAATGGTA	3240
AGTTAAGAAA GGAAAAACG AAATGCATAT TGAACATCTT AGCCACTGGA GTGGTCATCT	3300
TAACCGTGAA ATGTACCTTA ACCGTTATGG ACATGGTGGG ATTCCAGTTG TGGTCTTTGC	3360
TTCATCAGGT GGTAGTCACA ACGAATACTA TGATTTTGGC ATGATTGATG CCTGTGCTTC	3420
CTTTATCGAG GAAGGCCTTG TCCAGTTCTT TACCCTATCT AGTTTGGATA GTGAGAGCTG	3480
GTTGGCTACT TGGAAAAATG CTCATGACCA AGCGGAAATG CACCGTGCCT ACGAACGTTA	3540
TGTGATTGAG GAGGCCATTC TTTTATCAAG CACAAGACAG GTTGGTTTGA TGGCATGATG	3600
ACGACAGGTT GCTCTATGGG AGCCTATCAT GCACTCAATT TCTTCCTCCA GCATCCAGAT	3660
GTCTTTACCA AAGTGATTGC TCTCAGTGGT GTTTACGACG CACGTTTCTT TGTGGGTGAT	3720
TACTACAACG ATGATGCTAT TTACCAAAAC TCGCCAGTAG ATTATATTG GAACCAAAAC	3780
GACGGCTGGT TTATTGACCG TTACCGTCAG GCAGAGATTG TGCTGTGTAC GGGGCTTGGA	3840
GCCTGGGAAC AAGATGGTTT GCCATCCTTT TACAAGCTCA AAGAAGCCTT TGACAAGAAA	3900
CAAATCCAG CCTGGTTTGC TGAATGGGGA CATGATGTCG CCCATGACTG GGAATGGTGG	3960
CGTAAACAAA TGCCCTATTT CCTCGGTAAT CTCTATTTAT AAAAGGAGTT ACCTATGAAT	4020
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TTGCGCAATA GCTTGACCGA GTATTTTCGT GTTGATAATC TTGAGAACAT AGATGAAGTC	4200
AAACGTGCAG TTGCTTTTCT CTTTTATAAA CATGGTCCAA TTGGCCGCAT CGAGTCTCAC	4260
AATGAATACT GGCTTGAGCT AGACGCAACA CTCAGAGAAC AATTCAATGT TTTTGGTGCC	4320
AAACCAGAGG ATCTCAAAAA GACGAAATAT AAGTCTGAAA TGAAGAACT TTTCAAAAAA	4380
GCAGGTGTTT CTGTGGTACC TGGAGCTGTT ATCAAGACGG AAGCAGATGT TGATCAAGCA	4440
GTGAAAGAAA TCGGTCTTCC AATGATTGCC AAACCTGATA ATGGAGTGGG AGCAGCCGCA	4500
ACCTTTAAAC TTGAGACAGA AGACGATATC AATCACTTCA AGCAAGAATG GGACCATTCA	4560
ACCTTTTATT TCTTTGAAAA ATTTGTCACT TCCAGCGAAA TCTGTACCTT TGACGGGCTC	4620
GTGGACAAGG ATGGAAAGAT TGTCTTCTCA ACAACCTTTG ACTACGCCCTA TACACCGCTT	4680

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GACCTCATGA TTTATAAGAT GGACAATTCT TATTATGTGC TCAAGGATAT GGATCCTAAA	4740
CTGCGCAAGT ATGGGGAAGC AATTGTCAAA GAATTTGGTA TGAAAGAACG GTTTTCCAT	4800
ATTGAGTTCT TCCGTGAGGG GGACGATTAT ATTACCATCG AGTACAATAA CCGCCCTGCA	4860
GGTGGTTTTA CCATTGATGT TTATAACTTT GCTCATTCCT TGGACCTTTA TCGTGGCTAT	4920
GCAGCTATTG TCGCAGGAGA GGAGTTCCTG GCGTCAGACT TTGAACTCA GTATTGTTTG	4980
GCTACTTCTC GCCGTGCAAA TGCTCACTAT GTTTATTCAG AAGAGGATTT GCTTGCCAAA	5040
TATAGCCAGC AGTTCAAGGT TAAAAAAGTC ATGCCAGCTG CCTTCGCGGA ACTTCAAGGA	5100
GATTACCTGT ATATGCTGAC CACTCCGAGT CGACAAGAAA TGGAGCAGAT GATTGCAGAT	5160
TTCGGACAAC GTCAAGAATA AGAACTATCG GATTAAGGAA ATTAATCCC TTAATCCTTT	5220
TGTTTTGTCT GATAAAAAAT AAGAGCATCC CAACAAGGTA GCTATCATAA AACTTGTTTCG	5280
ATAACTATTT GAAGCAGGAT TAGGTGGTCA GAAATTAAT TTTAATATTT CAATTGAGTC	5340
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TAGGAAGCTA GCCGCAGGTT TCTCAAAACA CTGTTTTGAG GTTGTGGATA GAACTGCACG	5520
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GTATAAAATA TTCAGGTGAC GCATAGATAT AGTTAATTGA AGCTTTGTTT GAAATCTGAT	5640
AAAATAATGA TATTACTAAG TTTTAAAAAC TAAAGAAAAG GGAAGATATG ATTACAGGCG	5700
AATTAaaaaa TAAATCGAT CAGCTGTGGG AAATTCITTT GACAGAAGGA AACGCAATC	5760
CTTTAACAAA TATTGAACAG TTGACTTATC TCTATTTAT GAAAGATTTG GATAGTGTCTG	5820
AGCTTGGACG TGAAAGTGAT GCTGAATTC TAGGGATTCC TTATGAGGGA GTTTTCCAA	5880
AAGATAAACC TGAATACCGT TGGTCAACTT TAAAAATAT AGGAGATGCT CAGGAAGTTT	5940
ATCGTTTAAT GACTCAGGAG ATTTTCCGT TTATTAAAA TCTCAAGGGG GATACAGATG	6000
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TTCAAAGGC AATTTCTATC TTAGATGTTT TTCCAAGTAG GGGATTAGAT GTAGATTTTG	6120
ATAATGACAA ACAAAGTATT ACTGATATCG GAGATATCTA TGAATATCTG TTATCAAAAT	6180
TGTCGACCCG AGGTAAAAAT GGACAGTTCC GTACACCTCG TCACATCATC GATATGATGG	6240
TTGAGTTGAT GCAACCGACT ATCAAAGATA TCATCTCAGA TCCCGCTATG GGTTCGTCTG	6300
GCTTCTTAGT ATCTGCTAGC CGTTACTTAA AGCGTAAGAA AGATGAATGG GAAACCAATA	6360
CAGATAATAT CAATCATTTT CATAATCAGA TGTTTCATCG AAATGATACG GATACGACTA	6420
TGTTGAGACT TGGGGCGATG AACATGATGC TACATGGAGT AGAAAAATCCA CAAATCAGTT	6480



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ACCTTGACTC GCTGTCTCAA GATAATGAAG AAGCCGATAA ATATACTTTG GTTTTAGCAA	6540
ATCCTCCTTT TAAGGGCTCA CTTGACTACA ATTCAACCTC TAATGACCTT CTTGCAACCG	6600
TAAAAACCAA AAAACAGAA TTACTCTTTC TTTCTCTTTT CTTGCGAACT TTAACCAG	6660
GTGGACGAGC AGCAGTTATC GTACCTGATG GTGTCCTTTT TGGTTCGTCT AAAGCTCATA	6720
AAGGAATTCG TCAGGAAATT GTAGAGAATC ATAAGCTTGA TGCTGTAATC TCAATGCCTA	6780
GTGGTGTGTT CAAGCCTTAT GCTGGAGTTT CAACTGCCAT TCTCATCTTT AAAAAACTG	6840
GTAATGGTGG TACTGACAAA GTCTGGTTTT ACGATATGAA AGCGGATGGT TTAAGTTTGG	6900
ATGATAAGCG ACAACCGATT AGCGACAATG ATATTCCAGA TATTATCGAA CGCTTTCATC	6960
ATCTTGAAAA AGAAGCAGAA CGTCAGAGAA CGGATCAATC TTTCTTTGTT CCAGTTGCTG	7020
AGATAAAGGA AAATGATTAT GATTGTCTA TCAATAAATA TAAAGAGATT GAGTATGAAA	7080
AAGTTGAGTA TGAACCAACA GAAGTCATAT TAAAGAAAAT CAATGATTTA GAAAAAGAAA	7140
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AAGTGAAGTT GGGGGAAGTC TTATCTCTAA AAAAAGGCAA GAAAGCCACT GTACTTGCTG	7260
AACAAACAAC TCTAAGCCAA CGTTATATTC AAATAGATGA TTTAAGAAAT AATAATAATT	7320
TAAATTCAC TGAAAGTTTA AATATGACTG AAGCACTCCC AGATGATATT CTGATAGCAT	7380
GGGATGGAGC TAATGCAGGA ACAGTTGCTT ATGGATTATC GGGAGCTGTT GGTAGTACAA	7440
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ATTTAAACAA GAATATATTA CTTGATTTAC AATTAGAATT GCTAGGTATC GAAGAACAAG	7620
AGAACATTAT CTGTATCTTT AATACGATTA AAAGGCTTAT TACTAAAAGA AAATTCAGT	7680
TAGATGAACT AAACCTGCTC GTCAAAATCCC GATTTAACGA GATGTTTGGG GAAAAATAAA	7740
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TAATATTACG TCCCAAGACA CCAATCTAA ATCAGAAATT TATTATCCAT GTTTTAAGGA	8100
ATAATAATTA TAGTCGAGTG ATATCAGGAA GTGCTCAGCC TCAGTTACCA ATTACAAAAT	8160
TAAAAAAAT ACTTCTCCCC CTCCCCCAC TAGCCCTCCA AAATGAGTTC GCAGACTTTG	8220

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TAGTCCAGGT CGACAAATCA CAATTGCTT GTGAGATAGC TATAAAAGTG TGGAGAAATA	8280
GCTTGAAATT TAGTATAATA TAGCTAAACT ATTTGTTTAA AGTGAGAAAA AAATGGGAAA	8340
TTTAGCTTT CTTTAAAAA ATGACGAATA TGAATCTTT TCAAAACCTT GCATTGAAGC	8400
TGAGAATATG ATTGCTACAT CAACTGTGGC TACTGCCTT ATGGCGCGTC GTGCTTTAGA	8460
GCAGGCTGTC CATTGGATAT ATAGTCACGA TTCATATTTA GAAGCTCCCT ATCGTGTCTAC	8520
TCTATCTTCT TTAGTATGGG ATGATGATTT TAGGGATATC GTAGATTCTG AACTCCACAA	8580
GCAGATAGTT CTGTTGATTC GGTGGGAAA CCATGCTGCT CATGGTGGTG AAATTAAGGA	8640
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CATCAAATAC CGAGAAACTC CACAATCTAT GATAAAGTTA CAAGACAGTT TACCAGAACT	8820
GCCTGATTTT CATGAACAGA TGGCTGCTCA GTCCTAGAA GTTCAAGAGA CTTATACTGA	8880
AAAACGTGAG ACTGCAGCGC AACGGCAAGA TGTGCCTTC CATATTGATC AATTATCTGA	8940
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GAAACATATC GGCTATCAGC CAATTGCTT TATTACAAAT GGTTGAAGC ACTATATACT	9240
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GATGGATAGA CGTCATCTTC AAAAACCGCT TGAGGATATT TCTAGTAAAA TTAGGGACGA	9360
TATTTCCGGG CGTCACTACC AAAACATGC CATTCGAAGC GTTGTGAAG CTTCTCTGA	9420
TCATCGTAGA CAGGCACTTT TGGTTATGGC AACTGGGGCG GGGAAAACTC GTACAGCAGT	9480
TTCTCTAGTT GATATCTTAT CACGTCATAA CTGGGTAAAA AACGTTCTCT TCTTAGCCGA	9540
TAGAACTTCC TTGGTTAAGC AAGCATATGA TTCGTTTGA AAATTACTCC CAGATCTTC	9600
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TTATCCGACC ATGATTGGAG CGATTAGTGG TCAAGAAGAA GTAAATCAAC GCCCTTTCAC	9720
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CAAGTCCATT TTTGATTATT TTGATGCAAG AATTGTAGGC TTAACAGCTA CTCGCGTCA	9840
AGATTTAGAT AAAACACCT ATGGATTCTT TAATTGGAG AATGGGGTTC CAACATATGC	9900
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CAAAGTAAA CTACCTACGG ATGGTCTACA TTATGATGAT TTGTCCGAAG AAGAAAAGGA	10020

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ACATTTTGAT AGCAAATTTG AAGACAATAG CTGTGAAAAA GATATTGATG GGAGTGATT	10080
TAATTCCTTT ATTTTCAATA AAAGTACAGT AGAAATTGTT TTAAATGAAC TCATGACAAG	10140
AGGAATTCAG ACAGCCTCGG GTGATGAAAT TGGTAAAACT ATTATTTTGG CTA AAAATCA	10200
TGATCATGCG GAATATATCA GAGGTATTTT TAACAACCGC TATCCTGAAA AAGGGAGCGA	10260
CTATGCTCAG GTGATTGATT ATAGTATTAA GCATTATCAG ACCTTGATTG ATGATTTTAA	10320
AATTAAGGAG AAGTATCCTC AAATTGCGAT TTCTGTCGAT ATGTTAGATA CAGGTATTGA	10380
TGTACCAGAG GTTGTAAAT TAGTCTTCTT CAAGAAAGTA CGCTCTAAAA CTAAGTTTTG	10440
GCAGATGATT GGTGAGGAA CCCGTCTATG TAAAGATTTA TTTGGACCTG AGCAGGATAA	10500
GGAAAACTTC TTGGTATTTG ATTATGGGGA CAATTTTGAT TATTTTCGTG CAGATCCAAG	10560
AGATGGAGAG GGTGTCACA TTGTTTCGCT GACTCAGCCT TTATTTAATA TCAAAGTGA	10620
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TCAGCAGCTT GTCTCGGAAC TTCAAGGTCG TATAGAGAGC TTAAATCAGT TGGACTTCAG	10740
GGTTCGTATG GTTTTAGATA CAGTTTATAG CTATAGGAAA TTGGAAAGTT GCCAGAATCT	10800
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TAAAGAAGAT GAGATGGCGA GGAGATTGA TTTGTGGTTG CTTTCATATC AGTTGGGGCA	10920
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GGAGCCTGAA TTTTGGAAG AAGTTAACTT GTCTGATTTC GAAAAATTC GTCTTGCTAT	11100
TCGAGATTTA TTACAGTTTT TGGATAAAAC AGACCGTAAA CCCTACTATG TTAACCTTGA	11160
AGATCGTATA CTCTCCACTG TTCACGAGAC CACAGCATT TGCAGGTCA ACGATCTTCG	11220
GTCTTACAAT GAAAAAGTTG AGCATTATTT GAAAACTCAT CTGGATGAGG AGTCCATTTG	11280
TAAGCTATAC CATAATAAAA AGTTGACATC TGATGATATG CTTGCACTTG AAAAATTGCT	11340
TTGGGAAAAA TTAGGTAGTA AAGCAGACTA CCAAAGTCAT TATGAAAATA AGGCAATTCC	11400
GAGATTGGTT CGTGAGATTA TTGGCTTAGA TAGAGAGTCT GCCAATCGTA TTTTCTCTAA	11460
ATTTTGTGCG GATGAGAATC TTAATGCCAG GCAGATTTC TTTGTAAAAT TGATTGTAGA	11520
CTACATTGTA GAAAATGGTT TTTTAGAGAC GAAAGTGTTA ACGCAAGAGC CGTTTAAATC	11580
TTATGGTTCT GTTCAACTAC TCTTCCAACA CCAACTACCA GTACTTCGTA ATATTGTCA	11640
AATCATTGAA CTTATCAATA ATCGAGCTGG AGAAGCGGCT TAAATTCTAA AGTGATTGCC	11700
ATGCTGAGAC TCATTTAAAA TTA AAAAGAG TAGAAATTTA TGCTATATAT GAGAAGTTTT	11760

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ATTAGGAAGA ATGTCATCGT TTTCTAGAA TACAGTATCA GTTCTTAAGT GGTGATAAA	11820
TTTCAAAGTA GATACTTGTA CCACGATGTT TGTGATCGA GTTATTAACA AAAGAGCTAC	11880
TTTGATTTTA AAGAAATAGA AAACAAAAG CCGAGCAAGA ATTCAATTGC AGGAGAAAAT	11940
GAAATAATAC TCAATGAAAA TCAAAGAGCA AACTAGGAAA CTAGCTGCAG GCTGCTCAAA	12000
ACACTGTTTT GAGGTTGCAG ATGGAAGCTG ACGCGGATTG AAGAGATTTT CGAAGAGTAT	12060
AAATCTTCCT AGGATAAAGC AAAACGCATA GTATCAAGGG TTTCAACAC TTGATACTAT	12120
GCGTTTTCTG ATGTTAAAGA CTTTCTACCA GGTTTTTTAA AAGCATAATT GTTAGTTGTA	12180
GTCAATTTATT ATTCTTCAAA GAAAAATGGT GGGGCGAATT TTTTCAGTTC TTCAAAGCAC	12240
TTTTGAGCAG TATCTGCATC TTCACAGATG ATAAGACAGA CATCATTACC ACAAAGGGTA	12300
GCGATAGCGT CAGGGAAGCT CAAAGTATCA ATGATAGAAC CAAAGGATTG AGCCAGTCCA	12360
GGAAGGGTTT TTAGTAGGAC TTGGTGTGA ACTGGGCGCA TCCAGACAAG GGCCTCTTCC	12420
ATGTAGAGTT CGAGACGTTT TTCCCATTTT GAGATGGAAC CATTGTTAAG AACATAATAA	12480
GCGCTATCTT CTTGCGGAC TTTTGATAGG TTCATATTTT TGATGTCGCG TGAGAGGGTT	12540
GCCTGGGTTA CTTGAATGTC GTTCTCAGCA AGAAGGGCTT GCAACTCAGC CTGTGTATGA	12600
ATCTTGTTTT TTGTGATAAG AGCGCGTATA AGTTGGTGGC GGTGTTCTGA TTTATTCATA	12660
ATAATGTAAC TCCTTTTAGC AAGGTAAGGT AAGCATGGAC TGAGCGAGGT CGACAGTCAA	12720
GTGGTAGTCT GTATTGTCAC GGATGGTGAT TTCAAAGTCA GTAGTATAGA GGAATAAACC	12780
GAGAGTGTCT CCTTCTTTTA GCTTGTAAT AGTTGGCTGC AGTTCAAAT GAACGTCCAT	12840
CCATTCATCT GCAGTAATAT CCTCTACTAA CAGTAAATCA TTTCTATTTT GTAAATTAAG	12900
GTAACCTTTT GTCACGACTC GTTGTGCCTC TGGTCTAAAT GGCAATTCAC AGAGATTTTC	12960
CAACATGTGA TAGCGACCGT TGTCAATGGT TCTAGCACTT AAAATAGCTG GATAAGGTTG	13020
TAGGTATTTT TTTTGCCCAA ATTCTAGCAG TTGGGCAGAT AAGAGCCCCCT TGTGTGACT	13080
GGATTTGATA CGAAGATTGA GCTGAGCGCG ACCGTTTAGG TGGAGATCTT TAGTCACAGG	13140
AAGGTTAATA GTAATCTGAT TGGCTTTCCC TTGATAGAGC TCTGTATTGA AGGTTTGGTA	13200
TGTCTTACCA TAGCGCTCAA AATCCTTATC TGGGTACTGG TTTTGAATAG CTTGCTCTTC	13260
TTGACCAAGT GAGAAGGTTT CACAGTTTTC TTGCCCCCG AAGTTATCAA GTGATAACCA	13320
AGTCTGTGGA GCTGTATTGT CCTGCCAGAT AACAGTAGGA AGTTGAAAGT CTGTTTCCCTG	13380
TCCTAGTAAT TTCTTGTCAT ATAAGGCATT TATGCACTCA GGAAGTCAA TTGATTGCCA	13440
ATTGTTTCATG TAAACATGGG CACCATTATG GAAAAAGAGA TGCTTGTGTA TATGAGTAGG	13500
AAGAGCATGG AACATCTGGT AAACATGAAG TGTTTTGACA TTCCAATCCT GAGAACCATG	13560

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AGTAAAGACA ACCTCTGCCT TTACTTTATG GGCATTGAGC AGATAGTTGC GGTCAATGCCA	13620
AAACTGATTG TAGTCCCCAG TTTTTCGGTC TAGCTGAGCT TTCACTTTTT CTAAGTCAGC	13680
TTGGTGAGCT TCATTGCCAC GGATATAGTC GCCAGCTAAG AGATTACGAG AATAGGTTAA	13740
CTCAGCAAGG GAGTCAAAGT CCTCACCTGG ATAACCACCT GGGCTAGTCA CCAGACCGTT	13800
TTCACGGTAG TAGTTGTACC ATGATGAAAT TCCTGCCTCG GCAATGATAA CTTCTAAACC	13860
ATCGACTCCT GTAGTCGCAA GACCATTGGA CATGGTACCT AGATAGGAAA GTCCTGTTGT	13920
AGCAACTTTT CCGTTTGACC AATCAGCCTT GACTTGACGC TGGCGCGTGT GATCACTAAA	13980
GGCAGGGCAA CGACCGTTAA GCCAATCGAT GACATTTTAA TAAGCCTCGA TTTGCTGGTA	14040
GTCTCCATTA GTCATGAAAC CTGTCGAGTC TTTGGTACCA ACACCTGAGA CATAGAGATT	14100
GGCAAAGCCT CTCGGAAGGA AGTAGTCGTT TAGTGTATAG CTAGAGTTGA TGTGAGTTAG	14160
CTTTTCCTCA GCCTCTGCTA TAAGCTCAGC TTTACCTTGG GGTGGACGA GATTTAGTTG	14220
AGGTTTCTCT AGCTCAATCT TGTGAGGAAG CTTAACCTCA AGCTCGCCCT CCATCTTGTA	14280
GAGAGCCTTG TCACTAGCCT TGTCATTGGT TCCCTGATGA TAAGGGCTGG CTGTCATGAT	14340
GGCAGGGATT TTTCCATCAA AACGAGGGCG AATAATGCTA ACCTTTACTA GGTCTGATAG	14400
CCCTTTTGG TCAGTATCGA CACGAGACTC AACGTAAACG ACTTCACGAA TGACATCCTG	14460
GTTAGAAAAA GTAGCCAAAC TCTTGCCGTT AAAGTAGTGG TAGTCATTAT CCTCCGGAAT	14520
AAGACCATCA CTAACAAGTT GGTGATAAG AGTATTTCTT TTTTGGTGC GAGTATTGAG	14580
TAAGTGATAG AGATTTTCAA TCAAGTCACC ATATATAATG GGAAATCCAG TTTCTTTACG	14640
AAAAACGTC CTATCTTCGA AGTCAACCAA ATAAGAAAAG CCTAAAAGTT GAAAAGCAAC	14700
AGTATAAAAA ATATCTCTG TCAGTTCATC TCTGATTGA AAAAATGCA GCAGGTCGT	14760
TTTTTTATCA GCTGCTAGGA TAGAAAGTGG GTAGTTGGTG TCTTGATAAG TGAAAAAGAA	14820
ACGACGTAAA AAGGTTTCAA GTGAGTCTTT GTGATTGGCT GTATTTTGTA AATCAAAGCC	14880
ACATTTTTTT AGTTCAGATA AGACATTTTC TTTTGGAAAA TTGATATAAC TATATTGATT	14940
AAAACGCATA GAACCTCCAT ATAGAATGAC AGTTAAGGTT ATTATATCAA AAAAAAGCA	15000
GAAAGGGAAT TGTTAACTTC AAAAGGAAAT AATCCAATAA AAATGAATAA AGTACTAAAT	15060
TCAATATAGA GAACAGAGTA ACAATAAGAA TAAATAGATA GGGTATAAAA GTTCTAGGAG	15120
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AAAAATACAA ATGAATAGAA AATAAATTAG TAAGCTGATG AAATTTTCT CAAGAGAAGC	15240
CATTTATAGG TGAAAATGGT ATAATATAGT GAGAAGGATA GAGGAGAAGT GTAAATTGAT	15300

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CGCACAACTA GATACAAAAA CAGTCTATAG TTTTATGGAA AGCGTCATTT CGATCGAAAA	15360
GTATGTGAGA GCAGCTAAAG AATACGGCTA CACTCATTTG GCTATGATGG ATATTGACAA	15420
TCTTTATGGC GCTTTCGACT TTCTAGAGAT TACAAAAAA TACGGCATTC ATCCTTTGCT	15480
AGGGCTTGAA ATGACAGTGT TTGTAGATGA TCAGGGAGTG AATTTGCGCT TTTTAGCTCT	15540
ATCTAGTGTG GGCTATCAGC AGTTGATGAA GCTTTCGACA GCCAAGATGC AGGGGGAGAA	15600
AACTTGGTCA GTCCTGTCCC AGTACCTGGA GGATATCGCG GTCATTGTGC CTTATTTTGA	15660
TAGAGTTGAG TCGTTAGAAC TAGGCTGTGA TTACTATATA GGGGTTTATC CAGAAACACT	15720
AGCAAGCGAA TTTCATCATC CTATCTTACC TCTTTATCGG GTCAACGCTT TTGAAAGCAG	15780
GGATAGAGAA GTTCTTCAAG TTTTAACAGC GATTAAAGAA AATCTACCGC TCAGAGAAGT	15840
TCCCTTGCGT TCGAGACAAG ATGTCTTTAT ATCAGCAAGT TCTTTAGAGA AACTATTCCA	15900
AGAGCGTTTT CCGCAAGCTT TGGACAATTT AGAAAAGCTT ATTTTCAGGCA TTTCTTACGA	15960
CTTGGA TACT AGTCTGAAAC TGCCTCGTTT TAATCCAGCT AGACCAGCAG TAGAGGAGTT	16020
GAGAGAGCGT GCTGAACTGG GGCTTGTTCA GAAGGGGTTG ACTAGTAAAG AATATCAAGA	16080
TAGACTAGAC CAAGAATTGT CTGTTATTCA TGATATGGGC TTTGATGATT ATTTCTTGGT	16140
TGTTTGGGAT TTGTTGCGTT TTGGACAATC GAATGGCTAT TATATGGGAA TGGGAAGGGG	16200
TTCTGCAGTA GGCAGTTTGG TTTCTTATGC CTTAGACATC ACGGGGATTG ACCCAGTAGA	16260
GAAAAATCTG ATTTTGAAC GCTTTCTTAA TCGTGAACGC TATACCATGC CTGATATTGA	16320
TATTGATATC CCAGATATTT ATCGTCCAGA TTTTATCAGA TATGTTGGTA ATAAATATGG	16380
TAGTAAACAT GCGGCACAAA TCGTTACTTT TTCAACCTTT GGAGCCAAGC AAGCTCTTCG	16440
AGATGTCTTG AAACGCTTTG GTGTGCCAGA GTATGAATTA TCTGCAATTA CTAAGAAAAAT	16500
CAGTTTTCGT GACAACTCTA AGTCGGCCTA TGAGGGAAAT CTCCAGTTTC GTCAGCAAAT	16560
CAATAGTAAG TTAGAATACC AAAAAGCTTT TGAGATTGCT TGCAAGATAG AGGGCTATCC	16620
AAGGCAAACC TCTGTCCATG CGGCTGGTGT TGTAATTAGT GACCAAGATT TAACCAACTA	16680
CATTCCTCTA AAGTATGGTG ATGAAATCC ACTGACTCAG TATGATGCTC ATGGAGTTGA	16740
GGCTAGCGGA CTTTTGAAGA TGGACTTTCT GGGACTACGA AATTTGACCT TTGTCCAGAA	16800
GATGCAAGAG TTGCTTGCTG AAACAGAAGG TATTCATCTG AAAATTGAAG AAATCGATTT	16860
ACAAGACAAA GAAACGTTAG CTTTATTTGC CTCTGGTAAT ACAAAGGTA TCTTTCAATT	16920
TGAGCAACCA GGTGCCATTC GTCTGCTTAA GCGTGTGCAA CCAGTCTGTT TTGAAGATGT	16980
CGTCGCGACT ACTTCTCTAA ATCGACCGGG TGCTAGTGAC TATATCAATA ATTTTGTTGGC	17040
AAGAAAGCAT GGGCAGGAAG AAGTGACTGT TCTGGATCCA GTACTGGAGG ATATTTTGGC	17100

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TCCAACCTAC GGCATAATGC TCTATCAGGA GCAGGTATG CAGGTTGCCC AGCGACTTGC	17160
CGGATTTAGT CTTGGGAAAG CCGATATTTT GCGTCGGGCT ATGGGGAAAA AGGATGCCTC	17220
TGCCATGCAT GAGATGAGGG CTCCTTTAT TCAAGGTTCA TTAGAAGCTG GTCATACTGT	17280
GGAAAAAGCA GAGCAGGTCT TTGATGTTAT GGAGAAGTTT GCAGGTTATG GTTTTAACAG	17340
GTCACACGCC TATGCCTACT CAGCCTTGGC CTTCAGTTG GCTTATTTCA AAACGCATTA	17400
TCCAGCCATT TTTATCAGG TCATGTTAAA TTCTTCCAAC AGTGATTACT TAATAGATGC	17460
ACTTGAAGCA GGTTTGAAG TAGCCTCTCT ATCCATCAAC ACCATTCCCT ATCACGATAA	17520
AATTGCCAAC AAGGCCATCT ATCTAGGTTT GAAATCCATT AAAGGAGTCA GTAATGATTT	17580
AGCTCTCTGG ATTATTGAAA ATAGACCTTA TTCTAACATT GAAGATTTTA TAGCTAAATT	17640
ACCTGAGAAT TATCTGAAAC TTCTCTGCT AGAACCTTTG GTAAAAGTTG GTCTTTTCGA	17700
TTCAATTTGAA AAAAATCGTC AAAAAGTATT TAATAACTTA GCTAATCTAT TTGAATTTGT	17760
GAAAGAGTTG GGAAGTTTGT TTGGAGATGC TATTTATAGT TGGCAGGAAT CGGAAGATTG	17820
GACGGAACAA GAAAAATTTT ATATGGAACA AGAGCTTTTA GGGATAGGTG TCAGCAAACA	17880
TCCACTACAA GCTATTGCAA GTAAGGCTAT TTACCCGATT ACCCCAATCG GAAATTTGTC	17940
AGAAAAATAGC TATGCTATTA TCTTGGTTGA AGTTCAGAAA ATAAAAGTGA TTCGTACCAA	18000
AAAGGGTGAA AATATGGCCT TCTTACAGGC AGATGATAGT AAGAAAAAAT TGGATGTCAC	18060
TCTCTTTTCA GACTTATATC GTCAGGTTGG ACAGGAAATA AAAGAGGGAG CCTTCTACTA	18120
TGTAAGGGA AAAATACAAT CACGTGATGG CCGTCTGCAA ATGATTGCAC AAGAAATAAG	18180
AGAAGCAGTT GCTGAACGCT TTTGGATACA GGTGAAAAAT CATGAATCGG ATCAAGAAAT	18240
TTACCGCATT TTAGAACAAT TTAAAGGCCC AATCCCAGTC ATCATCCGGT ATGAAGAGGA	18300
ACAGAAAACC ATCGTTTCTC CCCATCATTT TGTAGCTAAA TCCAATGAAT TAGAGGAGAA	18360
ATTGAATGAA ATCGTTATGA AAACGATTTA TCGCTAAAAA TACGGAAAAT AGAAGAATTT	18420
TCAACGTAAA TGTGGTATAA TCAGTAAGAA TGTAAAAAGA AAAAGGAGCA TAACCAATAT	18480
GAAACGTATT GCTGTTTGA CTAGTGGTGG AGACGCCCT GGTATGAACG CTGCCATCCG	18540
TGCAGTTGTT CGTCAAGCAA TTTCAGAAGG AATGGAAGTT TTTGGTATCT ATGACGGATA	18600
TGCTGGTATG GTTGCCGGTG AAATTCATCC CCTAGATGCA GCTTCAGTAG GGGACATCAT	18660
TTCTCGTGGT GGTACTTTCC TTCCTCAGC TCGTTACCCA GAGTTCGCTC AACTTGAAGG	18720
GCAACTTAAA GGGATTGAGC AATTGAAAAA ACACGGAATT GAAGGTGTAG TTGTTATCCG	18780
TGGTGACGGA TCTTACCACG GCGCTATGCG TTTGACTGAA CATGGCTTCC CAGCTATTGG	18840

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TCTTCCAGGT ACAATCGATA ACGATATCGT TGGTACTGAC TTTAC, TCG GTTTTGACAC	18900
AGCGGTTACT ACTGCCATGG ACGCTATCGA TAAGATTTCGT GATACATCAT CAAGTCACCG	18950
TCGTACTTTT GTAATCGAAG TTATGGGACG TAACGCTGGT GATATCGCTC TTTGGGCTGG	19020
TATTGCAACT GGTGCTGATG AAATCATCAT CCCTGAAGCA GGCTTCAAGA TGGAAGATAT	19080
CGTAGCAAGC ATCAAAGCTG GTTATGAATG TGGTAAAAA CACAATATTA TCGTCTTAGC	19140
TGAAGGTGTG ATGTCAGCGG CTGAATTTGG TCAAAAACTT AAAGAAGCTG GAGATACAAG	19200
CGACCTTCGT GTAACAGAAC TTGGACATAT TCAACGTGGT GGTCTCTCAA CTGCGCGTGA	19260
CCGTGTTTTG GCGTCACGTA TGGGTGCACA TGCTGTAAAA CTTCTTAAAG AAGGTATCGG	19320
TGGTGTGCG GTTGCTATTC GTAACGAAAA AATGGTTGAA AATCCAATTC TTGGTACTGC	19380
AGAAGAAGGG GCATTGTTTA GCCTTACTGC AGAAGGTAAG ATTGTGGTTA ACAACCCAGC	19440
TACAAA	19446

## (2) INFORMATION FOR SEQ ID NO: 52:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 16593 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 52:

TCGTAAATAT GCTCTGTTTT TGGATTTTGT TTCTTAATCT GTTTGGCAAG TGCCTTCATC	60
ATAGAAATAG GACCACACAT ATAGACGGTT GCATGTTCCG GCACTTCTTT TTGTTCAAAA	120
TTAAGATAGC CGTCTTTCGT ACTGTCGATT AGATGGAGTT CAAAATTAGG ATTTTCTGA	180
GCATAGTTAC GGAGTAAATC TAGGTAGACT GCATTTTCAT CTCCACGGAA GCTATAGTAG	240
AAGTGAACCT GTTTATCTAA AATAGGATGT TCACGGATGT AAGAGATGAA GGGGGTGATC	300
CCAATACCTC CAGCAATCCA AACCTGATTT TCTCGTCCTT CTTCTATGAT CATGTGTCGG	360
TAAGCTCTGT CTAGGGTTAC TTTGCTGCCG GCTTGAAGAT TATCATAGAT ATTCTTGGTA	420
TGGTCGCCCTG AAGTTTAAAC AGTAAAGTAA AGAGTTTGAC CATGACCTCC TGAGATAGAA	480
AAGGGATGCG GAGCACTTTC AAAGCCTTCT TGGAAAATCT TTAGAAAGGC AAATTGTCCT	540
GATTGATAGT TGAAAGGTCT GCTAAGATGG ATTTGAATTT CTCTAGTATC GTGATTTAAG	600
CGTTTGAGAT GGGTAATTTT CCCTAGATAG GGGAAGGAAA TCTTTTGATA TAGAAAAATG	660
ATATAAAAC CAGCTAGTAA GCCTAAAAGG GCATAGCTAC CAACAAGAAA ACTTAGAAGA	720
TTAAATGTAA GGAGACGATT GCCCATTATC ATGTAGATGT GAAAGAGTCC TAAAATATAG	780



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GCTAGGTAAA CCAGGCGGTG AATCCATCGC CAAGCTTCGT ATTGGATGTA TTTGCCTAAA	840
TAGGCGACAA GGATGATGCT GGCAAAGATA TAGATGGCAA GATTGCCAAA CTGAGCAGCT	900
AAGCGAGAGC CCCACAAACC GCCCATACTA AAGTTATGAA AGATTAGTAG GATGATTGAG	960
AGAAAGGCTG TGAATTTGTG GACGGTGTAG ACCTTCTCCA AACTGTGAAA CCAGCTTTCT	1020
AGTAGTGGGA GACGAGTGGC TAGGATAAAA GTCAGAGATA GGCTTGTTAA AGCTAGTCCT	1080
GGAATCATGA ATTGGGGAGA AGTGTTTCATC CAAGTCAAAA GAGTCAAGAT AAAACTAGCT	1140
ATGATAAAGA GTAGTCCTTT GACTGATTTT ATAGAAAATT CCATTTTCATT TAGATTTCSA	1200
TTTGTGTAA ATAAATTTGT TACATTTTAT CATAGAAAAT GTATGGTGTG AAATTGAGGT	1260
CTATAAATAT CTACTCTCAT CAAAAAACTC TCCAATTGAA CTGGAGAGTG GCTGTTTATA	1320
CTCAATGAAA ATCAAAGAGC AAAGTAGGAA GCTAGCCGCA AGTTGCTCAA AACACTGTTT	1380
TGAGGTGCA GATAGAGCTG ACGTGGTTTG AAGAGATTTT CGAAGAGTGT TATTCTGCAG	1440
CTTGTGCCA ACGTTTGGCT AGCATATGAG ACAGGCTAGA AATTGCTAGG TTAAGCTGA	1500
AGTAGATGAG GGCAATCAGG ATGTAAAGAC TGAAGACCTG CTCTGGTTCC AAATAACGGC	1560
CCATGAGAAT TTGGCTGGCT CCAAAGAGTT CTTGTAGGGC GATAACAGAG TAGAGGAGAC	1620
TGGTATCCTT AATCACGTA ACAAACTGAG AAATGATGGC TGGTAGCATT TTGCGGATGG	1680
CTTGTGGGAG AATGATGTAG TAGAGGATTT GGGCTGAGGT GAAGCCTTGT GACATTCCTG	1740
CTTCGTACTG TCCCTTGTCT ACGGCATTGA GACCGCCTCG AATAATCTCA GCCAAGGCTG	1800
CTGATGTAAG GAGAGTAAAG GCTGTAATAC CTGCTGGTGT GGATTTTCATT TTGAACACCA	1860
AAAAGATAGT AAAAATCCAG AGAAGGTTGG GAACGTTGCG CACAAACTCG ATATAAATAC	1920
TGGAAATAAT CCGTAAGACA GCATTTTTCG CATTCTCTGT GACAGCTAGC ACCGTACCGA	1980
TGATAGTAGA GAGGATGATG GCAATCAGAG AAATATAGAG GGTCAAGCCA AATCCTTTAA	2040
AGATAAAGAC TAGGTTATCT GGGGTTAAAA CTTCTAAAAT AGATTCCATA GTAACCTCCT	2100
AAAGTGAATA GGCTTTTTTG TTGGCTTGCT CCATCTTGCG ACCAAACTGG GCAACAGGGA	2160
ACCATAGAGC AAAGTAGAGA AGAGCAGCAC CTAAAAAGGC TGGTATATAG TTTCCGTTGA	2220
GAGCCGACCA AGACTTAGTC ACAAACTCA AGTCTACTCC AGAGATGATA GCTACAGTAG	2280
AGGTCTTCTT GATGAGGTTA ACAATTTGGT TGGTCAATGG AGGGAGAATG ATGCGGAAGG	2340
CCTGAGGCAA GATAATCAAG CGCATGGCAC TGATATAGGT AAAACCTTGC GACAAGGCCG	2400
CCTCCATCTG ACCACTAGGA ATAGACTGAA TCCCTGAACG AATAACCTCA GCGATATAAG	2460
CGCCGTGATA GAGTCCACG CAGAGAACGG CTGTCCAATA AATTGGAATC ATGATGATAT	2520

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GGTCACTGAT AAGAGGTAGG CCATAAAAA CAATAACAAA CTGCACCAAG AGGGGAGTAT	2580
TTTGGTAAAA TTCAACAAAG ATGCGAGCTA AAATGCGTAA AATTGGACGT TTA CTGGTTG	2640
ACATGGCACC AAAGAAGATG CCCAAAACCA TAGCGAGGAT AAAGGAACCA ACCGCTAGGG	2700
CAAGGGTGAA GAGGAAACCA TTGAAAAATT GTCCAAAATC CTGAAAATAG GCTGTCCAAG	2760
ATGATAAATC TGTCATGGGG TGTCCTCCTT AATCTGCAGT ATGGCTAGAT GGT TTTGAGCT	2820
TGTAACGGTC ATAAAGTTTC TGCAAACTAC CATCCTTGCT CCATT TAGTA ACCAAGTTAT	2880
CAAGATAGTC GTTGAGCTCT GTATTTGATT TCTTGGTAAC AATACCGTAG TCAGATGGCT	2940
TGAAACTATC ATCTAGTAGT GCTGTCCGTT TACTAGTGTA GCCAGATAGA ATAGAGCGGT	3000
CAACGGAAAA GGTATCGATA CGATGAGCGT GCAGGGAACT AATCAATTCT GGGTAGGAAC	3060
CAAGTTCGAC GAATTTAAAC TTCAGACCTT TCTTTTACC CAGTTCAGTA ATCAGGCGTT	3120
GGGTGATAGA ACCTTGGGCG ACTCCGATGG TTTTGGCGTT TAGGTCTCTA ATCTTTTGA	3180
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CATTGTCTAG AAGGGGGCCG CGGGTTTGTG CTGTAACCGG CACATAGCGA ATCTTGACCT	3360
TGAGTTCATC AGCTACCATC TTGGCCAAGT CGGTTTCGAT ACCAGAATAA GTACCGGTCT	3420
TGGGATCTTT GTAACCAAAA TTGGGAACGT CTGTGTTGAC ACCGACAACC AGTTCGCCTC	3480
TTTTTTGAAT GTCTGCGATA CTGTGATCAG CCTGGACTGG TTTGGCAGCA GCAAGGCCGA	3540
AAAGGCTAAT CAATAATGCT GATAAAAAGA ATTTTTTTC ATAGGCGCCT CCTTATTGA	3600
CTTTGTCACT TCGTGGTTG ATAATTTTGC TGAGGAATTG TTGGGCACGA GGTTCGCTTG	3660
GATTGTCAAA AAAGTTATCG ACATCTGTCT TATCTACTAA AACTTCTCCG TCGGCCATAA	3720
AGATAATGCG GTCCGCAACC TCTCGAGCAA AGCCCATTTT GTGGGTAACG ATGATCATGT	3780
TCATCCCATC ATGCGCCAGT TTCTGCATAA CTGCTAGAAC ATCTCCGATA GTCTCAGGAT	3840
CAAGAGCAGA TGTTGGTTCA TCAAAGAGGA GGAGTCCCG ATGCATAGCA AGACCACGAG	3900
CGATGGCGAT CCGCTGTTTT TGTCACCAG ATAGCATGGC GGGATAGGAA TCTTTCTTGT	3960
CCCACATATT TACAAATTCC AGATATTTTT GGGCGSTTTT TTCAGCTTCT TTTTATCAA	4020
TTCTAGAAC TTCAATGGGT GCAAGCGTTA CGTTTTCTAA CACAGCTTTG TGTGGATAAA	4080
GGTTAAATG TTGAAAAACC ATGCCGACTT CCTTGCGAAG AGGTACCAAA TCTTTCTGGC	4140
TGGCACCAGC AACTTGGTGC CCATTGACTA GGAGACTTCC TTTGTCAACA GTCTCTAAAC	4200
CATTGATCGT ACGGATAAGA GTGGACTTCC CAGAGCCAGA AGGTCCAAGC AGGACAACAA	4260
CTTGTCTTTT TTCAAAACGG AGATTGATGT TGCGGAATGC GTGGTAGTCT CCGTAATATT	4320

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TTTCGACGTT TTTAAATTCT ACTAAAGCCA TGAGAGATCT CTATTGTGTT ATATTTTATA	4380
ACACGGTTCT ACAATAAAAG AATGTTCTTG TCAAATCATA TCTGAAAAAA TTCACTATAG	4440
TGAAATAAGA ACAGGAAAAA TCGATCGGGA CAGTCAAATC GATTTCTAAC AATATTTTAG	4500
AAGTAGAGGT GTACTATTCT AGTTTCAATA TACTATAAAA TGTATATAAA AAGCAATCTG	4560
GATAGAGAAA ACGTCTAAAT CATGTTATAA TGAAGCAATA GAATTCTTAG AAAGAGTGGG	4620
TGTCTTTTGG ATAACACCTA CTTATGAATG GCAGTTTGCC CTGCAGGTAG AAGATGCGGA	4680
TTTTACAAAG ATAGCCAAGA AGGCTGGACT GGGTCTGAG GTGGCTCGGT TATTGTTTGA	4740
GAGAGGGATT CAGAACCAAG AAAGTCTGAA GAAGTTTTTA GAACCTTCCT TGGAGGACTT	4800
ACATGATGCT TATCTGCTCC ATGATATGGA CAAGGCAGTG GAGCGGATTC GTCAGGCTAT	4860
TGAAGAAGGG GAAAATATTC TTGTTTATGG AGACTATGAT GCGGATGGCA TGACTTCGGC	4920
TTCTATTGTG AAGGAAAGTT TGGAACAACT TGGTCTGAG TGCCGAGTTT ACCTGCCAAA	4980
TCGTTTACC GATGGCTATG GCCCTAATGC TACTGTTTAT AAATACTTTA TCGAGCAAGA	5040
AGGGATTTC TTGATTGTGA CGGTGGACAA TGGGCTTGCT GGTCTAGAG CTATTGCATT	5100
GGCTCAGTCT ATGGGAGTAG ATGTCATTGT GACAGACCAT CATTCCATGC CTGAAACCCCT	5160
GCCAGATGCT TATGCTATTG TCCATCCTGA ACATCCAGAT GCGGATTATC CTTTTAAATA	5220
TTTGGCTGGT TGTGGAGTTG CTTTCAAGTT GGCTTGTGCC CTGTTAGAAG AAGTGCAAGT	5280
GGAATTGCTT GATTTGGTCC CTATTGGAAC TATTGCAGAT ATGGTGAGTC TGACGGATGA	5340
AAATCGTATC TTAGTTCAAT ATGGTCTGGA AATGTTGGGT CATACCCAGC GCATTGGTCT	5400
GCAAGAAATG CTGGACATGG CTGGGATTGC TGCCAACGAA GTAACAGAAG AAACGGTTGG	5460
TTTCCAGATT GCTCCTCGTT TGAATGCCTT GGGTCGCTTG GATGATCCCA ATCCTGCCAT	5520
TGATTGTTG ACTGGATTG ATGATGAGGA AGCGCATGAG ATTGCCCTTA TGATTACCA	5580
GAAAAACGAA GAGCGCAAGG AAATCGTTCA GTCTATCTAT GAAGAAGCCA AGACCATCGT	5640
GGATCCTGAG AAGAAGGTTT AGGTCTTGGC CAAGGAAGCC TGGAATCCTG GGGTCTTAGG	5700
AATCGTGGCT GGTCTTTTAT TGAAGAATT GGGACAGACA GTCATTGTTT TTAATATAGA	5760
AGACGGTCGT GCCAAGGGCA GTGCTCGTAG TGTGGAAGCG GTCGATATTT TTGAAGCTCT	5820
GGATCCCCAT CGAGACCTCT TCATCGCCTT TGGAGGTCAT GCAGGTGCAG CGGTATGAC	5880
GCTGGAAGTT GAGCAACTCT CAGATTTATC TCAGGTTTTG GAAGATTATG TTCGTGAAAA	5940
AGGTGCAGAT GCTGGTGGCA AGAATAAGTT AAACCTAGAT GAAGAGTTGG ATTTGGAGGC	6000
ACTTAGCTTG GAAACGGTCA AAAGTTTGA ACGTTTAGCT CCTTTTGGAA TGGATAATCA	6060

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GAAACCTATT TTTTATATCA AGAATTTTCA GGTCGAAAGT GCTCGTACTA TGGGGGCAGG	6120
TAATGCCCAT CTAAAGCTGA AAATTTCCAA GGGTGAGGCG AGTTTGAAG TGGTAGCCTT	6180
TGGTCAAGGC AGATGGGCGA CAGAGTTTTC TCAAACCAAG AATCTAGAGT TAGCGGTAA	6240
ATTGTCTGTC AACCAATGGA ATGGCCAAAC TGCCCTCCAG TTGATGATGG TGGATGCGCG	6300
AGTGGAAGGT GTTCAACTTT TTAACATTCTG TGGAAAAAAT GCAGTCTTGC CAGAAGGTGT	6360
TCCAGTCTTG GATTTTCCTG GAGAACTGCC AAATCTTGCG GCTAGTGAAG CTGTTGTCGT	6420
AAAAACATT CCAGAGGATA TTAATCAGCT GAAGACCATT TTTCAGGAAC AGCATTTCTC	6480
TGCTGTCTAT TTCAAAATG ATATTGACAA GGCTTATTAT CTGACAGGTT ATGGGACTAG	6540
AGATCAGTTT GCCAAATTGT ACAAGACTAT TTACCAGTTC CCAGAGTTTG ATATTGCTA	6600
CAAGCTGAAA GATTTGGCTG CATATCTTAA TATTCAACAA ATCTTGCTGG TCAAGATGAT	6660
TCAAGTATTT GAAGAACTAG GCTTTGTGAC GATAAAAGAT GGTGTGATGA CAGTCAATAA	6720
AGAGGCGCCA AAGCGGGAGA TAGGAGAAAG TCAAATTTAC CAAAATCTCA AACAAACCGT	6780
TAAAGACCAA GAAATGATCG CGCTGGGTAC GGTGCAAGAA ATTTATGATT TTTTGATGGA	6840
AAAAGAGTAG AAGTTAGGAA AGAGTTGGGA AATCAACTCT TTTTGAATAA CAGACCTTCA	6900
TTTTGAAAAT CATCAAAAAA ATCGTATAAT GGTAGGAAAA GATTCGGCTG AAAGTATCAG	6960
AACCTTTTGA ATAAGAGGGT AGAATTGCCC TATAATCAAG ATAAACTAAG ATTTTGAGG	7020
AAAAATGAGT AATATCAGTT TAACAACACT TGGTGGTGTG CGTGAGAATG GAAAAATAT	7080
GTACATTGCT GAAATTGGAG AGTCCATTTT TGTTTTGAAT GTAGGGTTAA AATATCCTGA	7140
AAATGAACAA TTAGGGGTG ATGTGGTGAT TCCAAACATG GATTACCTTT TTGAAAATAG	7200
CGACCGTATT CCTGGGGTTT TCTTGACCCA CGGGCATGCG GATGCCATTG GTGCTCTACC	7260
GTATCTCTTG GCAGAGGCTA AAGTTCTGT ATTTGGGTCT GAGTTGACCA TTGAGTTGGC	7320
AAAGCTCTTT GTCAAAGGAA ATGATGCCGT TAAGAAATTT AATGATTTC ATGTCATTGA	7380
TGAGAATACG GAGATTGATT TTGGTGGGAC AGTGCTTTCC TTCTTCCTA CGACTTACTC	7440
CGTTCAGAG AGTCTGGGAA TTGTCTTGAA GACATCGGAA GGAAGCATCG TTTATACAGG	7500
TGACTTCAAA TTTGACCAAA CGGCTAGTGA ATCTTATGCA ACTGATTTTG CTCGTTTGGC	7560
AGAGATTGGT CGTGACGGCG TCCTGGCTCT CCTCAGTGAT TCGGCCAATG CAGACAGCAA	7620
TATTCAGGTG GCTAGTGAAT GTGAAGTTAG GGATGAAAT ACCCAAATA TTGCTGACTG	7680
GGAAGGTCGT ATCATCGTTG CAGCTGTTTC CAGTAATCTT TCTCGTATTC AGCAGATTCT	7740
TGACGCTGCG GATAAACAG GTCGACGTAT CGTCTTGACA GGATTTGATA TTGAAAATAT	7800
CGTCCGCACA GCGATTCTG TTAAGAAGTT GTCTTTAGCC AACGAAATTC TTTTGATTAA	7860

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GCCTAAAGAT ATGTCTCGCT TTGAAGACCA TGAGTTGATT ATTCTTGAGA CAGGTCGTAT	7920
GGGTGAGCCT ATCAATGGAC TTCGTAAGAT GTCGATTGGT CGCCATCGTT ATGTAGAAAT	7980
CAAGGATGGG GACCTAGTCT ATATTGCTAC GGCTCCGTCT ATTGCTAAAG AAGCCTTTGT	8040
TGCGCGTGTG GAAAATATGA TTTATCAGGC AGGTGGGGTT <u>GTCAAATTGA</u> TTACCCAAAG	8100
TTTACATGTA TCAGGGCAGC GAAATGTGCG TGATTTGCAG CTGATGATCA ATCTTTTGCA	8160
ACCTAAGTAC CTCTTCCTG TCCAAGGGGA GTATCGTGAG TTGGATGCTC ACGCTAAGGC	8220
TGCCATGGCA GTTGGGATGT TGCCAGAACG CATCTTCATT CCTAAAAAGG GGACGACCAT	8280
GGCTTACCAG AATGGAGACT TTGTTCCAGC TGGATCGGTT TCAGCAGGAG ATATCTTGAT	8340
TGATGGGAAT GCCATTGGTG ATGTTGAAA TGTGTTCTT CGTGACCGTA AGGTCTTGTC	8400
AGAGGATGGA ATTTTCATCG TGGCTATTAC AGTCAACCGT CGTGAGAAGA AAATTGTGGC	8460
TAGGGCTCGT GTTCACACGC GTGGATTTGT TTATCTCAAG AAGAGTCGCG ATATTCTCCG	8520
TGAAAGTTCA GAATTGATTA ACCAAACGGT AGAAGAGTAT CTTCAAGGAG ATGACTTTGA	8580
CTGGGCAGAT CTCAAAGGTA AGGTTCGTGA CAATCTGACC AAGTACCTCT TTGATCAAAC	8640
CAAGCGTCCG CCAGCCATTT TACCAGTAGT CATGGAAGCA AAATAATCGT TGAAATAAAC	8700
AGAGAGAAAG TCGAGTTTCG GCTTTTCTT ATAGAAAAAT AGAAGGAGAA AATCATGGCA	8760
GTGATGAAAA TCGAGTATTA CTCACAAGTA TTGGATATGG AGTGGGGGGT GAATGTCCTC	8820
TACCCTGATG CCAATCGAGT GGAAGAACCA GAGTGGAAG ATATTCCCGT CTTGTACCTT	8880
TTGCACGGGA TGTCTGAAA TCATAATACT TGGCTTAAGC GGACCAATGT AGAACGCTTG	8940
CTTCGAGGAA CTAATCTCAT CGTTGTTATG CCCAATACCA GCAATGGTTG GTACACCGAT	9000
ACCCAGTATG GTTTTCACTA CTACACGGCT CTAGCAGAGG AATTCCACCA GTTTCTGAAA	9060
CGCTTCTTCC CTAATATGAC GAGCAAGCGT GAAAAGACCT TTATCGCTGG TCTTTCTATG	9120
GGAGGCTACG GCTGCTTCAA ACTGGCTCTT ACGACAAATC GTTTTCTCA TGCAGCTAGT	9180
TTTTCAGGTG CCCTCAGCTT TCAAACTTT TCTCCTGAAA GTCAAAATCT GGGAACTCCA	9240
GCCTACTGGA GAGGTGTTTT TGGAGAGATT AGAGACTGGA CAACTAGTCC CTATTCTCTT	9300
GAAAGTCTGG CTAAAAATC GGATAAAAAG ACCAACTTT GGGCGTGGTG TGGCGAACAG	9360
GATTTCTTGT ACGAAGCCAA TAATCTCGCA GTGAAAAATC TCAAAAAACT AGGTTTGTAT	9420
GTGACCTATA GCCATAGCGC TGGAACTCAC GAGTGGTACT ACTGGGAAAA ACAATTGGAA	9480
GTTTTTTTAA CAACCTACC AATTGATTTT AAATTAGAAG AGAGACTGAC TTAGTTTGAA	9540
CTTCAGCATA GGGGGAGTAG AACTAAAATA AAATATCTTT TCACTAGACT TTTCAAACGm	9600

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AAGTAGTAGA ATAGTAATAA AATACTGGAG GAAAGAGAGT AGGAAATGTA CCGTTATCAA	9660
ATTGGCATTCCACATTAGA ATATGATCAG TTTGTCAAAG AACATGAATT AGCCAATGTA	9720
TTACAAAGTA GTGCTTGGGA GGAAGTTAAG TCTAATTGGC AACATGAGAA GTTTGGTGT	9780
TACAGGGAAG AAAAATTACT GGCGACAGCT AGTATTTTGA TTAGAACTCT TCCGCTAGGC	9840
TATAAAATGT TTTACATCCC AAGAGGACCT ATATTGGATT ATGGGGATAA AGAACTCTTG	9900
AATTTTGCCA TTCAGTCTAT TAAGTCCTAT GCTCGCAGTA AGAGAGCGGT TTTTGTGACT	9960
TTTGACCCAA GTATTTCCT ATCTCAAAGT TTAATCAATC AGGAAAAGAC AGAATTTCT	10020
GAAAATCTGG CTATTATTGA TAGTTTGCAA CAAATGGGAG TAAGGTGGTC AGGAAAAACG	10080
GAGGAAATGG GAGACACCAT TCAACCTCGT ATTCAGGCGA AAATATACAA GGAAAAATTT	10140
GAAGAAGATA AACTTTCCAA GTCAACAAAA CAGGCTATTC GAACAGCACG AAACAAAGGG	10200
CTTGAGATTCC AATATGGTGG ACTGGAACATA TTAGATTCAT TTTCCGAGTT GATGAAAAAA	10260
ACTGAGAAGC GAAAAGAGAT TCATTGAGG AATGAAGCCT ATTATAAAAA ATTGTTAGAT	10320
AATTTTAAGG ACAAGGCCTA TATCACCTTG GCCACCTTGG ATGTTTCTAA ACCTTCGCAA	10380
GAGTTAGAAG AACAGTTAGC GAAAAATAGA GCCTTGAAG AGACCTTTAC TGAGTCGACT	10440
CGAACTTCAA AAGTAGAAGC GCAGAAGAAG GAAAAAGAAC GTTTGTTAGA GGAATTGACC	10500
TTCTTGCAAG AATATATAGA TGTAGGTCAA GCGAGAGTTC CTTTAGCGGC TACTTTGAGT	10560
TTGGAATTTG GACTACCTC TGTCAATATA TATGCTGGTA TGGATGATGA TTTTAAACGT	10620
TACAATGCAC CAATTTTAAC TTGGTATGAA ACGGCTCGCT ATGCCCTTGA ACGAGGTATG	10680
ATCTGGCAAA ATTTAGGTGG TGTGAAAAC TCTCTCAATG GTGGACTTTA TCATTTTAAG	10740
GAAAAATTTA ATCCAACGAT TGAAGAATAC TTGGGTGAAT TTACAATGCC CACTCATCCT	10800
CTCTATCCTC TGTTAAGACT TGCTCTTGAT TTCCGTAAAA CATTAAGAAA AAAACATAGA	10860
AAGTAAGTAT ATGGCACTAA CAACACTCAC GAAAGAAGAG TTTCAGACTT ATTCTGATCA	10920
GGTTTCTTCT CGTTCTTTA TGCAATCTGT CCAGATGGGG GATTGCTAG AAAAAAGAGG	10980
GGCTCGAATT GTTTATCTTG CTTTGAAACA AGAAGGAGAA ATTCAAGTTG CAGCTCTGGT	11040
TTATAGCCTG CCCATGCTGG GTGGTCTGCA TATGGAATC AATTCGGGGC CGATTATAC	11100
CCAACAAGAT GCTCTTCCAG TTTTATATGC AGAGTTAAAA GAATATGCCA AGCAAAATGG	11160
TGTATTAGAG TTGCTTGTA AACCCTATGA AACTTATCAA ACTTTTGATA GCCAAGGTAA	11220
TCCAATAGAT GCTGAGAAAA AAAGTATTAT TCAAGATTTG ACTGATTTAG GTTATCAATT	11280
TGATGGCTTA ACAACAGGTT ACCCAGGTGG AGAACCAGAT TGGTTTACT ATAAAGATTT	11340
AACTGAATTA ACTGAAAAGA GTTTGCTTAA AAGTTTATGC AAAAAAGGTA AACCCTTGGT	11400

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GAAAAAGGCT GAAACCTTTG GCATTGGTT GAAAAAGTTA AAACGTGAAG AACTATCGAT	11460
TTTTAAGAAT ATAACAAAAG AAACCTCTGA ACGTAGAGAA TATAGTGATA AAAGTTTAGA	11520
ATATTATGAG CATTTTATG ATACTTTTGG AGAACAAGCG GAGTTTCTCA TAGCAAGCTT	11580
AAATTTTTCG GACTATATGA GCAAATTGCA AGGTGAACAA ACTAACTAG AAGAAAACCT	11640
GGACAAGTTG CGACTTGATT TGAGTAAAAA TCCTCATTCT GAGAAAAAAC AAAATCAACT	11700
GAGAGAATAT TCTAGTCAAT TTGAAACGTT TGAAGTTCGA AAAGCAGAAG CGCGAGACTT	11760
GATTGAAAAA TATGGAGAAG AAGATATTGT TTAGCTGGG AGTTTATTTG TTTATATGCC	11820
TCAGGAAACG ACTTATCTCT TTAGTGGTTC CTACACTGAG TTAATAAGT TCTATGCCCC	11880
TGCACTGCTT CAAAAATATG TTATGTTGGA AAGCATAAAA CGTGGGAATAC CTAAATACAA	11940
CTTCCTAGGC ATTCAAGGGA TTTTGTATGG AAGTGATGGT GTTTTGCCTT TTAACAGAA	12000
TTTAAATGGC TATATTGTAC GCAAAGCAGG TACTTTCCGT TACCATCCAT CGCCTTTAAA	12060
ATACAAAGCT ATCCAGTTAC TCAAAAAAAT AGTAGGACGT TAAGATGAAA AAGTCAGTAT	12120
TTAGATTTCT TTAGCTTCT TTAGTAAAA TAATTCTTAT TTGCTAGAAA GGTGGAGAGA	12180
CATGCGCTGG CTTTTCGTT TGATAGGGGC TTTCTTTTCT TTTGTGTGGC GTTTGTTTTG	12240
CGGTCTGGTT TGGATAGTTG TGCTCTTATG TGTGCTTGCT TTCGGACTTC TCTGGTATCT	12300
GAACGGAGAT TTTCAAGGAG CGCTAAAGCA AGCAGAACGG TCAGTAAAAA TTGGTCAACA	12360
AAGTATTGAC CAATGGGAGA AAACAGGGCA ACTGCCTAAG TTAAGCCAGA CAGATAGTCA	12420
CCAGCATTCT GAAGGAAGGT GGGCACAGGC CTCTGCTCGT ATTTACCTGG ATCCGCAGAT	12480
GGATTCACGC TTTCAAGAGG CTTATTAGA AGCAATCCAG AACTGGAATC AACTGGTGC	12540
TTTAACTTT GAACTCGTGA CTGAGTCTAG TAAGGCGGAT ATTACGGCTA CGGAGATGAA	12600
CGACGGAGGC ACTCCTGTGG CAGGAGAGGC GGAAAGTCAA ACTAATCTCT TAACAGGGCA	12660
ATCTTGTGCC GTAACGGTGC GGTGGAATCA TTATTATTG TCCAATCCAT ACTATGGCTA	12720
CTCCTATGAA CGCCTTGTCC ATACGGCAGA ACATGAGTTA GGTCAATGCCA TTGGCTTGGA	12780
CCATACAGAT GAGAAGTCTG TCATGCAACC AGCAGGTTCC TTTTATGGTA TCCAGGAAGA	12840
GGATGTTGCA AACCTCCGAA AAATATATGA GACTAGTGAG TAGGGTACTA TCTTTCCTTA	12900
CTTTTTTTCG TATAATGGAA CTATGAACAA CTTGATTAAA TCAAACTAG AGCTCTTGCC	12960
GACCAGCCCT GGTGCTACA TTCATAAGGA TAAAAATGGC ACCATTATCT ATGTAGGAAA	13020
GGCTAAAAAT CTGCGTAATC GAGTACGGTC CTATTTTCGT GGAAGTCATG ATACCAAGAC	13080
AGAGGCTCTG GTGTCTGAAA TTCTGGATTT TGAATTTATT GTTACGGAGT CTAATATTGA	13140

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GGCACTTCTC CTAGAAATCA ACCTGATCAA GGAACAAG CCCAAGTACA ATATCATGCT	13200
CAAGGATGAC AAGTCCTATC CTTTCATCAA AATCACCAAT GAGCGCTATC CACGCTTGAT	13260
TATCACTCGT CAGGTCAAAA AGGACGGAGG TCTTTATTTT GGACCCTATC CCGATGTGGG	13320
GGCAGCCAAT GAAATCAAGC GGTGCTGGA TCGGATATTC CCTTTTCGTA AGTGTACCAA	13380
CCCCCCTCT AAGGTCTGTT TTTATTACCA TATCGGCCAG TGTATGGCCC ACACCATCTG	13440
TAAGAAGGAT GAGGCTTATT TCAAGTCTAT GGCCAGGAG GTGTCTGATT TTCTGAAAGG	13500
TCAGGATGAC AAAATCATCG ATGATCTCAA GAGTAAATG GCAGTAGCAG CACAAAGTAT	13560
GGAGTTTGAA CGTGCGCGG AATACCGTGA CCTGATTCAG GCTATTGGAA CGCTTCGAAC	13620
CAAGCAACGG GTCATGGCGA AAGATTTGCA AAATCGCGAT GTCTTTGGCT ACTATGTGGA	13680
TAAGGGCTGG ATGTGTGTGC AGGTTTCTT TGTCCGTCAG GAAGCTCAT CGAGCGCGAT	13740
GTCAATCTCT TCCCCTACTT CAATGATCCA GATGAGGATT TTTTGACCTA TGTAGGACAA	13800
TTCTATCAAG AAAAATCTCA TCTAGTTCCC AATGAGGTAC TGATTCCGCA GATATTGACG	13860
AAGAAGCTGT CAAGGCTTTG GTGGATTCCA AGATTCTTAA GCCTCAACGT GGAGAGAAAA	13920
AACAACTGGT CAATCTAGCC ATAAAAATG CTCGTGTTAG TCTAGAGCAG AAGTTCAATC	13980
TGCTAGAAAA ATCTGTCGAA AAGACTCAAG GAGCTATTGA AAATCTAGGG CGTTTGCTCC	14040
AAATCCCGAC CCCAGTACGT ATCGAGTCCT TCGATAACTC TAATATCATG GGAAGTAGCC	14100
CTGTTTCGGC TATGGTGGTC TTTGTCAACG GTAAACCGAG TAAGAAGGAT TACCGTAAGT	14160
ACAAGATAAA AACGGTTGTT GGACCAGACG ACTATGCCAG CATGAGAGAG GTCATTGCGA	14220
GACGCTATGG TCGAGTACAG CGTGAGGCTT TGAATCTCC AGATTTGATT GTGATTGATC	14280
GGGGGCAAGG TCAAGTCAAT ATCGCTAAGC AGGTTATCCA AGAGGAACTG GGCTTGATA	14340
TTCCAATTGC TGGGCTGCAA AAGAATGATA AGCACCAAAC CCATGAATTG CTCTTTGGAG	14400
ATCCGCTTGA GGTGGTGGAT TTGTCTCGCA ATTCTCAGGA ATTTTCTCTC CTCCAACGCA	14460
TCCAAGATGA GGTGCACCGC TTTGCTATCA CTTTCCACCG CCAACTGCGC TCCAAAAATT	14520
CTTTCTCATC TCAATTGGAT GGGATTGACG GTCTGGGACC TAAACGCAAG CAGAACTTTA	14580
TGAAGCATTT CAAGTCTTTG ACCAAAATCA AGGAAGCCAG TGTGGATGAG ATTGTCCAAG	14640
TTGGGGTACC TAGAGTCGTT GCAGAGGCTG TGCAAAGAAA GTTGAACCCG CAGGGAGAAG	14700
CCTTGCCCTCA AGTAGCAGAA GAAAGAGTAG ATTACCAAAC GGAAGGAAAC CACAATGAAC	14760
CATAAAATCG CAATTTTATC AGATGTTTAT GGCAATGCGA CGGCGCTAGA AGCAGTGATT	14820
GCAGATGCTA AAAATCAAGG GGCCAGTGAA TATTGGCTTC TGGGAGATAT TTTTCTTCTC	14880
GGTCCAGGCG CAAATGACTT AGTCGCCCTG CTAAAGGACC TTCCTATCAC AGCAAGTGTT	14940



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CGAGGCAATT GGGATGATCG TGTCTTGAG GCTTTAGATG GGCAATATGG CTTAGAAGAC	15000
CCACAGGAAG TTCAGCTCTT GCGTATGACA CAGTATTTGA TGGAGCGAAT GGATCCTGCA	15060
ACGATTGTCT GGCTACGAAG CTGCTTTTG CTGGAAAAGA AAGAAATTGA CGGATTGCCG	15120
TTTTCTATCT CTCATAATTT ACCTGACAAA AACTATGGTG GTGACTTGCT AGTTGAGAAT	15180
GATACAGAGA AATTTGACCA ACTGCTAGAT GCGGAAACGG ACGTGGCAGT TTATGGTCAT	15240
GTTCACAAGC AGTTGCTTCG TTATGGAAGT CAAGGGCAAC AAATCATCAA TCCAGGGTCG	15300
ATTGGCATGC CCTATTTTAA TTGGGAGGCG TTAATAAATC ACCGTTCCCA GTATGCCGTG	15360
ATAGAAGTTG AAGATGGGGA ATTACTCAAT ATCCAATTTT GTAAAGTTGC TTATGATTAC	15420
GAAGCTGAGT TAGAATTGCC CAAGTCCAAG GGGCTTCCCT TTATCGAAAT GTATGAAGAA	15480
CTGCGTCGTG ACGATAACTA TCAGGGGCAC AATCTGGAAT TATTAGCCAG CTTAATAGAA	15540
AAGCATGGGT ATGTAGAGGA TGTGAAGAAT TTTTGTGATT TTTTGTGAAGA GTTTCTTAAA	15600
ATAGCCAATG CAAACTAAAA AAGCGATTTG CTGGTCCAAT CGCTTTTAGT ATATCTTATA	15660
CTCAATGAAA ATCAAAGAGC AAAGTAGGAA GCTAGCCGTA GGTGCTCAA AGCAGAGCTT	15720
TGAGGTTGCA GATAAAGCTG ACGTGGTTTG AAGAGATTTT CGAAGACTGT TATTGTAAGT	15780
GAGATTGATC TGGGAGGTAA GAACCACTA GATAGGTATT GCTGAUTTTT TCAAGGGTTC	15840
CGTCTTGATA GAGTTCTTTG AGCGCTTTAT CAAATTGCTC TTTAACTCT TTTGGTCCG	15900
TTGAGAAAAT GATATAATTG CTGGGGCTAT CTGCAGAAGG TAAATCAACG ACTGAGAGGT	15960
CTAAACCACG GTCCTTGATA ATCTTTTGAA CGGATACCTT CTCAAAACT AGGAAATCAA	16020
ACTCTCCGTT AGCAAGGTCT AGGATTCCTT TACCAATATC CTCACCAGAA AAATTAATTG	16080
TAGCGGGATT ATCAGTGTGT TTCTGATTCC AGTTATTGAT GAATTGAGCG TTAGAAGTTC	16140
CGGTATCCTC TTGTGTTGTT TTACCAGCGA TCTGGTCAAG AGAAGTCAA GGATTTTCT	16200
TGTTGCTGAC AAGGACGAGG GGATTGTTGG AAATTGGAAG CGAGTAAAGG TATTTTTCAG	16260
CACGCTCTTT TGTGTAATC AAGTTATTGG CCGCAGCCTG ATAGTGACCA GAATCAAGTC	16320
CTGGGAAGAT GCTCTCCAG GCGGTTCTTT GGAATTGAAT CTCGTAGTCG CTGAGTTTTT	16380
CATCTACTGC CTTTAAACT TCGATATCAA AGCCTGTCAG ATTGCCCTTG TCTTCGTAGT	16440
CAATGGTGG CACGTCGCCA GCTGTAGCAA GCACGATTGT CTTTGTAGCG CTAGTCTCTT	16500
TGGGTGTAGC TTGATTCTCA CAGGCAACCA AAAATGGTAG GATAGCTAGT AATAGGCTAA	16560
ATTTTTTCAT ACTGTCTCCA TTCAAATGTA AAG	16593

(2) INFORMATION FOR SEQ ID NO: 53:

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## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3510 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 53:

GGGATATCCT TATATCCTTG TTCCTGGAAC CATTGTGGGA ATTGCTCAAC AGTTTTTTTCA	60
CCTTGAATTC CTGGTGCAAT GACAGTAAGA ATTTGGAAT CACGATCTGG TTTCGCCGCT	120
AGTTCCATCA ACTCTGGCAT ACTTTTCTTG CATGGACCAC ACCATGAAGC CCAAAACTTC	180
AAGTAAACCT TTTTACCCTT AAAATCAGAT AACTTAACCT CTTTGCCATC CATGGATTGC	240
AATGTGAAGT CTGGAGCATC TTTTCCAACA GCAATTTGTT GTACAGTCGT TTGTTGTTTT	300
GGCTGTTGTG CTGCTTGAGT CTTTTTAGTT TCTTCCTCAC CACAGGCCAT CAATACAAC	360
AATGACAAGA GACTTAAGCC AGCAAACATT ACTTTTTTCA TTGTCTCTCC TTTATTCAAA	420
AATTCCAGCT AGAACATTTA CTTGTCTTAA TAGTAACAAA ATTCCCATT AACAATGAG	480
GAAACCACCA ATTTTCTTTA GTAGCATCAT ATGACGCTTG ATTTTACTAA AATATGGCAT	540
GACTAGACCT GAAGCTAGTG CCAATACCAA GAAAGGAAGG GCCATGCCAG ACTGTAAATG	600
AGAGTATAAA TCGCTCCTTG CCAAGCGCCA TTGCCTCCAG AAGCCGCAAG TGCTAAAACA	660
GAACTTAAAA CTGGACCAAT ACAAGGTGTC CAACCAAAGC TAAAGGTAAT ACCAAGTAAA	720
AAAGCTGACC AATAACGATT AGAATCTGAT TTTTAAAGG TAAAACTTT TTGAACCTCT	780
AATTTCTTCA AATGAAAAAT TTCCATCTGG TGAAGACCCA AAATGATAAT AATAGCTCCC	840
ATGCCATATC GAAACCAATT TGCATAGAGA ATATGACCAA AGTAACCAGC ACCAAAGCCT	900
AGAATAAAGA AAATGAGAGA GATACCAGCG ATAAAGCAAA GTGTTTGAAT CAAGCCTGAC	960
CAGAGAACCT TTCTCCCAA CAAAGAAAAG CTTTTTGAC TTTCTTGATC ATCCAATAAA	1020
ATCCCAGCAT AACTGGCAG AAGAGGAAAA ATACAAGGAG AAAAAAGGA TAAACACCT	1080
GCTAGAAAAA CAGAGATTAA AAATACTATC GTTTCCAATA AAGAACCAAC TTTCTTAATA	1140
ATTCTAATCC TATTTTACTA TATTCAATTT TATTTGTAAG CTTTCTGCTA CGCAAAATCG	1200
TATCGGGCAC TATTGGACCA ATCTTTTCTT TTGCTAGTCA AGGCGGATCT TATCCCCCAA	1260
AATAGCCAAA AAGCAACGAC AAGGATTACT CATCGCTGCT TTTGTGAACG AAAATGTCTT	1320
TTAGGTCTGA CATTTCAATA ATCATGTTTT ACTTGAGTTT GTCAAGGATT GCTTTAAGCT	1380
CCTCTACTAG TTAGTTTCT GTCTCTGCTG AGCCATTTTC TTCTTTCACG AAATCAAGGG	1440
TTTCTTGAG AAGGTTTTGG GCTTTGGCAA GGACTTTTTT ATCCGCTTTT TCTGCATCTA	1500

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GCTGTCCTAG AACCTTGATC AATTCCTGTC TTAATTGCTG GATT	1560
GGCGAATCAG CCAGAAGGCA ATCACGCCTA GGAGGGCAAG TAGACTGACC ACAATCACTC	1620
CTGCCGGAAC TGAGTTTGTT TCAGTCATCT TATCTGAATC CTTACTATCT TCCGTTCCCTT	1680
GTTTTGCATC CTTCTTGTC TGTGCAGGCT TGCTGTCGCT AGCATTGCT TTCACATCTT	1740
TGAGAGAGTC CAAGGCAGCC CAGCCTTCAC AGACTCTACT GCAGTATGCA GACCTTACTC	1800
TGTCAAGGCA CTATCTTCGG GAGCTTTTGG AGCATCTAGG AGGACAGCCT TGCTTGATC	1860
GATTTTCGGA TCAGATACTG TTGCCAAAGC TTTCAAGCGT TGGTCTAACT CTTGACTCAA	1920
GGCACGAAGT TCAGACTTGT CAACTTGCTC TTGAGCTTGT GTGCTCGTTG AGCTAGCCGA	1980
AGCGCTTGCT ACCACTCTAG GATCTTGAGT CGGAGCTGAG CTTGGAGCTG GGACAGGGCT	2040
TGCAGGTTGA CTAGGAACAG TTATGGTATA TTGAACTAG AATAGTACAT ATGGACTTCT	2100
AAAACATTGT TAGAATTGCA TTTTACTGTC CTGATCGATT TGTCTATTTC TTATTTTATT	2160
TTACTATAAT AACCGATGGT GTGGTTAATG TTGGTAAGAG AAAGTTCTGA AACCAAGCTT	2220
CAAAAAAGTC GCTCGTCATC GTCTCTTCGT AAGTCATTGG AGCGATTAAT TCACCATTTG	2280
TTAGACCTGC AACCAAAGAA ATCCTCTGAT ATCTTCTTCC AGATACTTTG CCTCTTATTA	2340
ACTGACCTTT TAATGAGCGA CCATATTCTC GATAAAAATA AGTATCGAAT CCTGTTTCGT	2400
CAATCTAAAC AGGTGCTAGG TGCTTTAAAC TATTAAATTT CTTAAGAAAT AAGGCTACTT	2460
TTTCTGGGTC TTGTTTCATAG TAGGTGTGGT TCTTTTTTTC GAGTGTAGCC CATAGCTTTG	2520
AGCGCATAGT GGATGGTAGT TGGATGACAG CCAAATCAG AAGCTATTTT AGTCAAATAA	2580
GCCTCTGGAT TGTGAGTAAG ATAGTTTTTA AGTCTATCTC TATCAACTTT TCTTGGTTTT	2640
GTTCCTTTTA CTTGGTGGTT TAGCTCTCCT GTTTTCTCTT TTAGCTTTAA CCAGCCATAA	2700
ATGGTATTAC GTGAGATTG GAAAACGTGT GATGCTTCTG TTATACTACC TATTCGCTCA	2760
CAATAAGAGA GAACTTTTTT ACGAAAATCT ATTGAATATG CCATAAGAAG ATTATACCAC	2820
ATTGTGTAAT ATTTTGGTT CATTTCATA TAACACAAAA TAGATTATTA TTACATAACA	2880
AAAAAGAGGT CTAAACCTCT TAACTCAATT ACTCCGCCAG TAGGACTCGA ACCTACGACA	2940
TCATGATTAA CAGTCATGCG CTACTACCAA CTGAGCTATG GCGGATTAAA GCTAAGCGAC	3000
TTCCCTATCT CACAGGGGGC AACCCECAAC TACTTCCGGC GTTCTAGGGC TTAAGTTCTG	3060
TGTTGCGCAT GGGTACAGGT GTATCTCCTA GGCTATCGTC ACTTAACTCT GAGTAATACC	3120
TACTCAAAAT TGAATATCTA TTCAATTTAA GAAAACCGTT CGCTTTCATA TTCTCAGTTA	3180
CTTTGGATAA GTCCTCGAGC TATTAGTATT AGTCCGCTAC ATGTGTCGCC AACTTCCAC	3240

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TTCTAACCTA TCTACCTGAT CATCTCTCAG GGCTCTTACT GATATATAAT CATGGGAAAT	3300
CTCATCTTGA GGTGGKT-CA CACTTAGATG CTTTCAGCGT TTATCCCTTC CCTACATAGC	3360
TACCCAGCGA TGCCTTTGGC AAGACAACTG GTACACCAGC GGTAAGTCCA CTCTGGTCTT	3420
CTCGTACTAG GAGCAGATCC TCTCAAATTT CCTACGCCCG CGACGGATAG GGACCGAACT	3480
GTCTCAGGAC GTTCTGAACC CAGCTCGCGT	3510

## (2) INFORMATION FOR SEQ ID NO: 54:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20986 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 54:

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GCGGATTCTT GACCTTCAAG TAGTAGAGAT AGAGAATCTG CCTTTTCATT TTGAGGACAG	300
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TGGGTTACGA CAATCATGGT CAAGCCTTCC TGAGCCAGGT CCTGCATGAT TTTGAGGACT	540
TCTCCAACCA TTTCTGGATC GAGAGCTGAT GTTGGTTCAT CAAAGAGAAT AGCGTCCGGA	600
TTCATGGAGA GGGCACGAGC GATGGCCACA CGTTGTTTTT GACCACCTGA GAGTTGTTTT	660
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TATCCAATAA TATATTTAAA ATGGTAATTT	TATCTGTAAT TCTTTTTTCA ATGTATTGT	14160
TTAGCATAGT TACCGAATCT TAGTTGCATA	TAGATAATTT TAATTATTAT AATACAAAAG	14220
AAACTAATTG TCTTGTCAAA AAGGTTGTGG	AATTTCCGAC TTTATTGATA AAACAGCATG	14280
TAATAAAAAG CATTTTAAAG ATAGTAATGA	GTATTGGTGG AGTTTTATGG CTTATTTTTT	14340
TTATTAGAAA ATATTTTTTT ATCAAATATT	GTCTTCTAT AAAAAAATAT GTGATAAAAA	14400
TATCTATTGT GATGGAAGTT GTTTTAATTT	ATACTAGGAT AGTTAATAGT AATACTATAC	14460
TATACTATAT TGTATACAAG TGTGTCATTG	CCAGGTTGAG AAGATAGCTA TAACGCACTT	14520
TTATACGCTT TTGCTACGTT TGTTAGTGAA	CGGATTAAC CAGTGAGATA AATTTTATCA	14580
GAACATAAGT AATCCGTTTC TTCGTGTATA	CAGATTGAAA GTACCTATGA ATCATAGAAG	14640
GATTAACCTG TTCTATGAAT AATGCTTAAC	AGGGAGACAC ACATGAAAAA AGTAAGAAAAG	14700
ATATTTCAGA AGGCAATTGC AGGACTGTGC	TGTATATCTC AGTTGACAGC TTTTCTTCG	14760
ATAGTTGCTT TAGCAGAAAC GCCTGAAACC	AGTCCAGCGA TAGGAAAAGT AGTGATTAAG	14820
GAGACAGGCG AAGGAGGAGC GCTTCTAGGA	GATGCCGTCT TTGAGTTGAA AAACAATACG	14880
GATGGCACAA CTGTTTCGCA AAGGACAGAG	GCGCAAACAG GAGAAGCGAT ATTTTCAAAC	14940
ATAAAACCTG GGACATACAC CTTGACAGAA	GCCCAACCTC CAGTTGGTTA TAAACCCTCT	15000
ACTAAACAAT GGACTGTTGA AGTTGAGAAG	AATGGTCGGA CGACTGTCCA AGGTGAACAG	15060
GTAGAAAATC GAGAAGAGGC TCTATCTGAC	CAGTATCCAC AAACAGGGAC TTATCCAGAT	15120
GTTCAAACAC CTTATCAGAT TATTAAGGTA	GATGGTTCGG AAAAAACGG ACAGCACAAG	15180
GCGTTGAATC CGAATCCATA TGAACGTGTG	ATTCCAGAAG GTACACTTTC AAAGAGAATT	15240
TATCAAGTGA ATAATTTGGA TGATAACCAA	TATGGAATCG AATTGACGGT TAGTGGGAAA	15300

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ACAGTGTATG AACAAAAAGA TAAGTCTGTG CCGCTGGATG TCGTTATCTT GCTCGATAAC	15360
TCAAATAGTA TGAGTAACAT TCGAAACAAG AATGCTCGAC GTCCGGAAAG AGCTGGTGAG	15420
GCGACACGTT CTCTTATTGA TAAAATTACA TCTGATTACAG AAAATAGGGT AGCGCTTGTG	15480
ACTTATGCTT CCACTATCTT TGATGGGACC GAGTTTACAG TAGAAAAAGG GGATAGCAGAT	15540
AAAAACGGAA AGCGATTGAA TGATTCTCTT TTTTGGAAAT ATGATCAGAC GAGTTTACAG	15600
ACCAATACCA AAGATTATAG TTATTTAAAG CTGACTAATG ATAAGAATGA CATTGTAGAA	15660
TTAAAAATA AGGTACCTAC CGAGGCAGAA GACCATGATG GAAATAGATT GATGTACCAA	15720
TTCCGTGCCA CTTTACTCA GAAAGCTTTG ATGAAGGCAG ATGAGATTTT GACACAACAA	15780
GCGAGACAAA ATAGTCAAAA AGTCATTTTC CATATTACGG ATGGTGTCCC AACTATGTCG	15840
TATCCGATTA ATTTAATCA TGCTACGTTT GCTCCATCAT ATCAAAATCA ACTAAATGCA	15900
TTTTTTAGTA AATCTCCTAA TAAAGATGGA ATACTATTAA GTGATTTTAT TACGCAAGCA	15960
ACTAGTGGAG AACATACAAT TGTACGCCGA GATGGGCAAA GTTACCAGAT GTTTACAGAT	16020
AAGACAGTTT ATGAAAAAGG TGCTCCTGCA GCTTTCCAG TTAAACCTGA AAAATATTCT	16080
GAAATGAAGG CGGCTGGTTA TGCAGTTATA GGCGATCCAA TTAATGGTGG ATATATTTGG	16140
CTTAATTGGA GAGAGAGTAT TCTGGCTTAT CCGTTTAATT CTAATACTGC TAAATATTACC	16200
AATCATGGTG ACCCTACAAG ATGGTACTAT AACGGGAATA TTGCTCCTGA TGGGTATGAT	16260
GTCTTTACGG TAGGTATTGG TATTAACGGA GATCCTGGTA CGGATGAAGC AACGGCTACT	16320
ACTTTTATGC AAAGTATTTT TAGTAAACCT GAAACTATA CCAATGTTAC TGACACGACA	16380
AAAATATTGG AACAGTTGAA TCGTTATTTT CACACCATCG TAACTGAAAA GAAATCAATT	16440
GAGAATGGTA CGATTACAGA TCCGATGGGT GAGTTAATTG ATTTGCAATT GGGCACAGAT	16500
GGAAGATTGG ATCCAGCAGA TTACACTTTA ACTGCAAACG ATGGTAGTCG CTTGGAGAAT	16560
GGACAAGCTG TAGGTGGTCC ACAAATGAT GGTGGTTTGT TAAAAAATGC AAAAGTGCTC	16620
TATGATACGA CTGAGAAAAAG GATTCGTGTA ACAGGTCTGT ACCTTGAAC GGATGAAAAA	16680
GTACGTTGA CCTACAATGT TCGTTTGAAT GATGAGTTTG TAAGCAATAA ATTTTATGAT	16740
ACCAATGGTC GAACAACCTT ACATCCTAAG GAAGTAGAAC AGAACACAGT GCGCGACTTC	16800
CCGATTCCTA AGATTCGTGA TGTGCCGAAG TATCCAGAAA TCACAATTTT AAAAGAGAAA	16860
AAACTTGGTG ACATTGAGTT TATTAAGGTC AATAAAAAATG ATAAAAAACC ACTGAGAGGT	16920
GCGGTCTTTA GTCTTCAAAA ACAACATCCG GATTATCCAG ATATTTATGG AGCTATTGAT	16980
CAAAATGGCA CTTATCAAAA TGTGAGAACA GGTGAAGATG GTAAGTTGAC CTTTAAAAAT	17040

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CTGTCAGATG	GGAAATATCG	ATTATTTGAA	AATTCTGAAC	CAGCTGGTTA	TAAACCCGTT	17100
CAAAATAAGC	CTATCGTTGC	CTTCCAAATA	GTAAATGGAG	AAGTCAGAGA	TGTGACTTCA	17160
ATCGTTCAC	AAGATATACC	AGCGGGTTAC	GAGTTTACGA	ATGATAAGCA	CTATATTACC	17220
AATGAACCTA	TTCCTCCAAA	GAGAGAATAT	CCTCGAACTG	GTGGTATCGG	AATGTTGCCA	17280
TTCTATCTGA	TAGGTTGCAT	GATGATGGGA	GGAGTTCTAT	TATACACACG	GAAACATCCG	17340
TAAAGTGTAG	AAATGATAAT	ATCTATGTTT	TGAACGATAC	TTTAAAGAAG	TAGCACTCAA	17400
GAAGAGATTT	AAGTTTACTT	GGTGAAACCT	GTTTTATTTC	TAAGTAAACT	ATCATTGAAA	17460
GGGGAGATGT	TTTCGAAAAC	TTGCACAGAA	AAAGGATTAT	TATTGTCATG	TGTAATTCAT	17520
TACATTGCTC	ACAGTTGATT	TTAAGAGATA	TGAATAAGGA	GAAATCATGA	AATCAATCAA	17580
CAAAATTTTA	ACAATGCTTG	CTGCCTTATT	ACTGACAGCG	AGTAGCCTGT	TTTCAGCTGC	17640
AACAGTTTTT	GCGGCTGGGA	CGACAACAAC	ATCTGTTACC	GTTCATAAAC	TATTGGCAAC	17700
AGATGGGGAT	ATGGATAAAA	TTGCAAATGA	GTTAGAAAACA	GGTAACTATG	CTGGTAATAA	17760
AGTGGGTGTT	CTACCTGCAA	ATGCAAAAAG	AATTGCCGGT	GTTATGTTCC	TTTGGACAAA	17820
TACTAATAAT	GAAATTATTG	ATGAAAATGG	CCAAACTCTA	GGAGTGAATA	TTGATCCACA	17880
AACATTTAAA	CTCTCAGGGG	CAATGCCGGC	AAC TGCAATG	AAAAAATTAA	CAGAAGCTGA	17940
AGGAGCTAAA	TTTAACACGG	CAAATTTACC	AGCTGCTAAG	TATAAAATTT	ATGAAATTCA	18000
CAGTTTATCA	ACTTATGTCG	GTGAAGATGG	AGCAACCTTA	ACAGGTTCTA	AAGCAGTTCC	18060
AATTGAAATT	GAATTACCA?	TGAACGATGT	TGTGGATGCC	CATGTGTATC	CAAAAAATAC	18120
AGAAGCAAA	CCAAAAATTG	ATAAAGATTT	CAAAGGTAAA	GCAAATCCAG	ATACACCACG	18180
TGTAGATAAA	GATACACCTG	TGAACCACCA	AGTTGGAGAT	GTTGTAGAGT	ACGAAATTGT	18240
TACAAAAATT	CCAGCACTTG	CTAATTATGC	AACAGCAAAC	TGGAGCGATA	GAATGACTGA	18300
AGGTTTGCCA	TTCAACAAAG	GTACAGTGAA	AGTAACCTGT	GATGATGTTG	CACTTGAAGC	18360
AGGTGATTAT	GCTCTAACAG	AAGTAGCAAC	TGGTTTGTAT	TTGAAATTAA	CAGATGCTGG	18420
TTTAGCTAAA	GTGAATGACC	AAAACGCTCA	AAAAACTGTG	AAAATCACTT	ATTCGGCAAC	18480
ATTGAATGAC	AAAGCAATTG	TAGAAGTACC	AGAATCTAAT	GATGTAACAT	TTAACTATGG	18540
TAATAATCCA	GATCACGGGA	ATACTCCAAA	GCCGAATAAG	CCAAATGAAA	ACGGCGATTT	18600
GACATTGACC	AAGACATGGG	TTGATGCTAC	AGGTGCACCA	ATTCCGGCTG	GAGCTGAAGC	18660
AACGTTCCAT	TTGGTTAATG	CTCAGACTGG	TAAAGTTGTA	CAAACGTGAA	CTTTGACAAC	18720
AGACAAAAAT	ACAGTTACTG	TTAACGGATT	GGATAAAAAAT	ACAGAATATA	AATTCGTTGA	18780
ACGTAGTATA	AAAGGGTATT	CAGCAGATTA	TCAAGAAATC	ACTACAGCTG	GAGAAATTGC	18840

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TGTCAGAAC TGGAAAGACG AAAATCCAAA ACCACTTGAT CCAACAGAGC CAAAAGTTGT	18900
TACATATGGT AAAAAGTTTG TCAAAGTTAA TGATAAAGAT AATCGTTTAG CTGGGGCAGA	18960
ATTTGTAATT GCAAATGCTG ATAATGCTGG TCAATATTTA GCACGTAAAG CAGATAAAGT	19020
GAGTCAAGAA GAGAAGCAGT TGGTTGTTAC AACAAAGGAT GCTTTAGATA GAGCAGTTGC	19080
TGCTTATAAC GCTCTTACTG CACAACAACA AACTCAGCAA GAAAAAGAGA AAGTTGACAA	19140
AGCTCAAGCT GCTTATAATG CTGCTGTGAT TGCTGCCAAC AATGCATTTG AATGGGTGGC	19200
AGATAAGGAC AATGAAAATG TTGTGAAATT AGTTTCTGAT GCACAAGGTC GCTTTGAAAT	19260
TACAGGCCCTT CTTCAGGTA CATATTACTT AGAAGAAACA AAACAGCCTG CTGGTTATGC	19320
ATTACTAACT AGCCGTCAGA AATTTGAAGT CACTGCAACT TCTTATTCAG CGACTGGACA	19380
AGGCATTGAG TATACTGCTG GTTCAGGTAA AGATGACGCT ACAAAGTAG TCAACAAAAA	19440
AATCACTATC CCACAAACGG GTGGTATTGG TACAATTATC TTTGCTGTAG CGGGGGCTGC	19500
GATTATGGGT ATTGCAGTGT ACGCATATGT TAAAAACAAC AAAGATGAGG ATCAACTTGC	19560
TTAAGTAAGA GAGAAAGGAG CCATTGATGA CAATGCAGAA AATGCAGAAA ATGATTAGTC	19620
GTATCTTCTT TGTTATGGCT CTGTGTTTTT CTCTTGTATG GGGTGACAT GCAGTCCAAG	19680
CGCAAGAAGA TCACACGTTG GTCTTGCAAT TGGAGAATA TCAGGAGGTG GTTAGTCAAT	19740
TGCCATCTCG TGATGGTCAT CGGTGCAAG TATGGAAGTT GGATGATTCG TATTCCTATG	19800
ATGATCGGGT GCAAATTGTA AGAGACTTGC ATTCGTGGGA TGACAATAAA CTTTCTTCTT	19860
TCAAAAAGAC TTCGTTTGAG ATGACCTTCC TTGAGAATCA GATTGAAGTA TCTCATATTC	19920
CAAATGGTCT TTAATATGTT CGCTCTATTA TCCAGACGGA TCGCGTTTCT TATCCAGCTG	19980
AATTTCTTTT TGAAATGACA GATCAAACGG TAGAGCCTTT GGTCAATTGTA GCGAAAAAAA	20040
CAGATACAAT GACAACAAAG GTGAAGCTGA TAAAGGTGGA TCAAGACCAC AATCGCTTGG	20100
AGGCTGTCCG CTTTAAATTG GTATCAGTAG CAAGAGATGT TTCTGAAAAA GAGGTTCCCT	20160
TGATTGGAGA ATACCGTTAC AGTTCTTCTG GTCAAGTAGG GAGAACTCTC TATACTGATA	20220
AAAATGGAGA GATTTTGTG ACAAATCTTC CTCTTGGGAA CTATCGTTTC AAGGAGGTGG	20280
AGCCACTGGC AGGCTATGCT GTTACGACGC TGGATACGGA TGTCCAGCTG GTAGATCATC	20340
AGCTGGTGAC GATTACGGTT GTCAATCAGA AATTACCACG TGGCAATGTT GACTTTATGA	20400
AGGTGGATGG TCGGACCAAT ACCTCTCTTC AAGGGGCAAT GTTCAAAGTC ATCAAAGAAG	20460
AAAGCGGACA CTATACTCCT GTTCTTCAAA ATGGTAAGGA AGTAGTTGTA ACATCAGGGA	20520
AAGATGGTCG TTTCCGAGTG GAAGGTCTAG AGTATGGGAC ATACTATTTA TGGGAGCTCC	20580

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AAGCTCCAAC TGGTTATGTT CAATTAACAT CGCCTGTTTC CTTTACAATC GGGAAAGATA	20640
CTCGTAAGGA ACTGGTAACA GTGGTTAAAA ATAACAAGCG ACCACGGATT GATGTGCCAG	20700
ATACAGGGGA AGAAACCCTT GTATATCTTG ATGCTTGTTG CCATTTTGTG GTTTGGTAGT	20760
GGTTATTGTC TTACGAAAAA ACCAAATAAC TGATATTCAA TGTACATCAT TATGAATAGG	20820
ATAGCAGGCT GAAGGGAAGA CCAGAGTACT CTGAGGTGAT GTTAATCAGG AATCATGGTG	20880
ATGTGGCATG AATCATCAAT AACGGATATG AGGCTGGGCA GATTGTGCCA GCCTCATTGT	20940
GGGTTATTGT TTGTAAAACG ATAGGACTGG TCTGGTAATC ATTPTA	20986

(2) INFORMATION FOR SEQ ID NO: 55:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 21040 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 55:

CCCAGCAAAA AGCCATCCGA AGATGACTTT TTGCTATTT AATTTCTGTA TAAGTTACTT	60
CCAAGCCACG CTTAACAGCT GGACGATTGG CAATTTTTC TGCCCATTTT ACTAGATTTT	120
GATAACTTGA GGCATCCAAG AATTTTGCAG AACCTTGGTA AAGATTTCTT TGAACAACT	180
GTCCATACCA AGACCAGATA GCAATATCTG CAATCGTATA GTCATTGCCT GCAATATAAG	240
GTTTCTGAGC CAATTCCTTA TCCAATAAAT CCAACTGGCG TTTCACCTCC ATCGTAAAAC	300
GGTTAATAGG ATATCCAAT TTTTCAGGAG CATAATTGAA GAAATGTCCA AATCCCCCAC	360
CTAGAAAAGG TGCTGCACCT GCTTGCCAGA ATAGCCAATT CAAAACCTTCT ACCTTTTCCA	420
CAGGATTACT TGGTAAAAAG GCTCCAAATT TCTCAGCAAG GTAAAGAAGA ATATGAGCAG	480
ACTCAAAGAC TCTTACGTTT TCAGTACCTG ACTGGTCCAA TAAGGCTGGA ATCTTGGAA	540
TTGGATTGAG CTTACAAAAG TCTGATCCGA ATTGATCCCC ATCCATGATA GCAATCTTAT	600
ACAAGTCGTA AGCCGCTTCC TTAAAACCAG CTTCTAGTAA TTCTTCCAAT AAGATAGTAA	660
CCTTCACACC ATTTGGTGTT CCCAGTGAAT AAAGCTGAAA AGCTTGTTCT CCTTTTGGCA	720
AGTTTTGTTC GAAACGGGCA CCTGCTGTTG GTCTGTTTAG CCCCCTAAAA GCTCCTTGAT	780
TACTAGCTTC ATCCTGCCAT ACGGTCGGTA ATTGATATGC TGACATCCGA AACCTCCCTT	840
AAATCGCATT CTTGTCAAAA CCGAGTTTGC GTTGAATAAA CTTAACGATT TCGACGATGA	900
TAATCATTGA GAAGCTTCCA GCCATAACAA TTCCCCATTG TGACAAGTCT AGTTTGGTTA	960
CGTGAAGAT TCCTTCAAGC GGTTCACAA CGATTGTTGC CATGAGAAGG ATAAAGGATA	1020



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CCAAGATGGA CCAGTTAAAG GTCTTAGACT TGAATGGGCC AACTGTCAAG ATGGATTGGT	1080
AGACAGACTT GACATTGTAG GCATGGAAGA GCTGAATCAA ACCAAGGGTT GCAAAGGCCA	1140
TCGTTAGGGC ATCTGCATGA ATAGCATGAT TGTCACCCAC ATGAACTGGG TAAGCAATCG	1200
CAAGGCCATA AACACTCATA ACAAGAGCTG CTTGGAGTAC ACCTTGATAA ATGATAGAAC	1260
TCAAAACACC ACCTGAGAAG AAGCTTGCCT TGGCTCCACG TGGTTTATGA TTCATGACAC	1320
CAGGTTCGGC AGGTTCAACA CCAAGAGCGA TAGCTGGGAA GGTATCCGTT ACCAAGTTGA	1380
TCCACAAAAG ATGAACCGGC TGTAAGACAT CCCAACCAAA CAAGGTTGAT AGGAAGATGG	1440
TTAATACTTC AGCAGTATTA GCAGAAAGTA GGTACTGAAT AGTCTTTTGA ATGTTTGAGA	1500
AGACCTTACG TCCCTCTTCC ACTGCGACGA TAATAGTCGC AAAGTTATCA TCTGCAAGAA	1560
TCATATCAGA AGCCCCCTTA GAAACCTCTG TACCAGTGAT TCCCATACCG ATACCGATAT	1620
CGGCTGTTTT CAGAGCTGGC GCGTCATTGA CACCGTCACC TGTCATGGCA ACGACTTTAC	1680
CTTGTTTTTG CCAAGCCTTG ACGATACGAA CCTTGTGTTT TGGAGACACA CGGGCATAAA	1740
CAGAGTATTG ACCAACGACT TTTTCAAAT CTTCATCTGA CAGTTCATTG AGTTCAGCAC	1800
CAGTTAAAAC GTGACCTTCT GTATCGTTTG CGTCAATGAT TCCCAAACGT TTGGCAATGG	1860
CTTCCGCTGT GTCTTGGTGG TCACCTGTAA TCATAATTGG ACGGATTCCC GCTTCCTTAG	1920
CCACACGAAC AGCCTCAGCG GCTTCAGGAC GTTCAGGGTC AATCATCCCA ATCAAACCAG	1980
TAAAAATTAA ATCATTTTCA AGCTCTTCAG AAGTGAGATT TTCTGGAATA CTATCGATAA	2040
TCTTATAAGC ACCTGCAAGG ACACGCAAGG CTGTATGAGC CATTTTCAGAA TTGTTTGTAC	2100
GAATGAGATT TGTAACCTTC TCATCAATCG GAGCAATATC CCCAGCCTTA TCACGAAGAA	2160
GACAACGTTT TAAGAGTTGG TCTGGCGCAC CCTTGACTGC TACAAGGAAA CGACCATCTG	2220
GCAATGGGTG AACTGTTGAC ATGAGCTTAC GGTGAGATC AAATGGCAAT TCAGCTACAC	2280
GAGGATATTT CTCTAAGAAA CCTTTGACAT CATAGCCCTT GTCCAAGGCA TATTGGATAA	2340
AGGCTGTTTC GGTGGGTCA CCAATCAAGT TACCTTCCAC ATCGATTTTC GTATCATTGG	2400
CCAAGACAAC TGAACGAAGT AGTGGCATT TCAAGACCTAG TTCAATATCA TCAGCTGAGT	2460
CATGTAGAAC CGCATCGTAG AAGACTTTTT CGACTGTCA TTTGTTTATA GTCAGCGTAC	2520
CAGTCTTATC AGAAGCGATG ATTTCAAGTT AACCAAGTGT TTCAACTGCT GGCAACTTAC	2580
GAACGATGGA ATGTCGTTTG GCCAAAACCT GAGTACCAAG AGAAAGAACG ATGGTAACGA	2640
TAGCAGGAAG TCCTTCTGGA ATGGCTGCAA CGGCAAGGCC AACAGAAGTC AACAACTCAC	2700
CAAGTGGATT TTTCCCTTGA ATGAAGACAC CCACTACAAA AGTAACAAGG GCAATGACCA	2760

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AGATAGCATA GGTCAAGACC TTAGAAAGGT TGTTCAAATT TTGTTTGAGT GGTGTATCAG	2820
TCTCATCCGC ATCTTGAAGC ATACCAGCAA TATGACCAAC TTCAGTGTAC ATACCTGTAT	2880
TGACAACAAC ACCCATCCCA CGACCATAGG TTACGTTTGA GTTTTGAAG GCCATGTTGA	2940
CACGGTCACC AATACCAGCA TCTGTCGCAA GCTCGACTGA CAAGTCTTTT TCGACTGGTA	3000
CAGATTCACC TGTCAAGGCT GCTTCTTCAA TTTTAAGAGA GTTGGCTTCT ATCAAACGTA	3060
GGTCCGCTGG TACCACGTCA CCTGCTTCAA GGGCAACGAT ATCGCCTGGT ACCAATTCTT	3120
TAGAGTCAAT CTCTGCCATG TGTCCATCAC GAAGAACGCG GGCAACTGGA CTAGACATGG	3180
ATTTGAGGGC TTCAATAGCT TCTTCAGCTT TTCCTTCTTG GTAAACACCA AAGGCAGCGT	3240
TGATGATAAC CACAGCTAGG ATGATAATGG CATCTGCGAT ATCTTCCCCA CCAGAAGTCA	3300
CGACTGACAA GATTGctGCC GCAACTAGGA TGATAATCAT CAAATCCTTA AATTGCTCGA	3360
TGAATTTGAC CAAGATTGAT CGTTTCTCGC CTTCTTCGAG TTCATTGTGC CCAAATTCGG	3420
CAAGGCGCTT TTCCGCCTCA CTTGATGACA AACCTTGCTC GGTGCGATCC ACAGCCTGCA	3480
AGACCTCTTC AGGGCTCTGA GTATAAAACG CTTGGCGTTT TTGTTCTTTT GACATGTGTC	3540
TCCTCCTTGA CATTGTGTGC AAAACAGACT CTCTTTCTGT CATAGCTTTT CACGACAAAC	3600
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TTTTCAGCAT AAAATTCGGA ATGACGACAC TATCACAGGT TTCTGCCAGC TACTCCCTTG	3720
AGTAGTACCA TTATACCAA TTTTGGGGAG TTTTCAAAGA GTAAAAACTG CTTTATTTGA	3780
ATTTTTCCTT GAAAACCAGT ATAATGGTAG AATGCTATGT GACTAGAAAG GAAGTTGAAT	3840
GAAGCAATCT ATCTCAAATC TCAAGTTAGC TGAGCGTGGA GCCATTATCA GTATTTGAC	3900
CTATTTGATC TTGTCTGCAG CCAAATTAGC AGCTGGTCAT CTCCTTCATT CATCCAGTTT	3960
GGTGGCCGAT GGTTTTAATA ACGTATCGGA CATCATTGGA AATGTGGCCC TCTTAATCGG	4020
GATTCGGATG GCGCGCCACC TGCAGACCGT GACCACCGTT TTGGTCATTG GAAGATTGAA	4080
GATTTGGCAA GCTTGATCAC TTCTATCATC ATGTTCTATG TCGGTTTCGA TGTTCATAAGA	4140
GATACCATTC AAAAGATTCT CAGTCGGGAA GAAACGGTCA TTGATCCTCT TGGTGCAACT	4200
CTAGGAATCA TTTCTGCAGC GATTATGTTT GTGGTCTATC TCTACAAAC TCGCCTCAGT	4260
AAGAAATCCA ACTCCAATGC GCTGAAGGCA GCTGCTAAGG ACAATCTTTC TGACGCTGTT	4320
ACCTCACTTG GAACCGCCAT TGCCATCCTA GCTAGTAGTT TCAATTATCC GATTGTGGAT	4380
AAACTGGTTG CTATCATCAT CACTTTCTTT ATCTTGAAGA CTGCCTATGA TATCTTCATC	4440
GAGTCTTCCT TTAGTCTTTC AGATGGCTTT GACGACCGCC TGCTCGAGGA CTACCAAAAG	4500
GCTATCATGG AAATTCCCAA AATCAGCAAG GTCAAATCGC AAAGAGGTCC CACCTACGGT	4560

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AGCAACATCT ACCTGGATAT TACACTAGAG ATGAATCCTG ACTTGTCTGT TTTTGAAAGC	4620
CATGAAATCG CGGATCAGGT CGAGTCTATG CTGGAGGAGC GTTTTGGCGT CTTTGATAACC	4680
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AAATTGCTTA TGGGTGAACA ATTGATTGAC CAAGGAAACC AACTAGAAGA ACTCTTGACT	4800
GATGATTTTG TCTATATTCG CCAAGATGGA GAGCAGATGG ATAAAGAGGC TTATAAGACC	4860
AAAAAAGAGT TAAATTCCTG TATCAAGGAC ATTCAAATTA CTTCCATCAG TCAAAAAACC	4920
AAACTCATCT GCTATGAGTT AGATGGTATC ATCCATACCA GTATCTGGCG TCGCCACGAA	4980
ACCTGGCAAA ATATCTTTCA TCAAGAAACC AAAAAAGAAT AGAGAAATCC TTTCATGAGA	5040
CGGGATTTTT CTATCTTTT ATACTCAATA AAAATCAAAG TGCAAATTAG GAAGCCGGTC	5100
ACAGGCTGTA CTTGAGTCGG CAATGTGAAG CCGACATAGT TTGCACTTTG ATTTTCGAAT	5160
AGTCTTAACT ATCAAATTC A TGAGATACT CATAGCCTTC GTATTTTCA AGGAGTGCTT	5220
CATTTTCTC ATCCAATTCT TTTTGGAGAG TAGCCAGCTT ACCAAAGTCA GAGCCGTTAG	5280
CCTGCATTC CTCTTCAATA GCAGCGATAC GTTTTCCAA GGTTCATA TCACCTTCAA	5340
TACTTGCCCA CTCCTGCTT TCTTGGTAGG TCATGCGTTT CTGTCTTCT CGAACCTTGA	5400
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CATCAAGATA GTCCGTGTAA TGACCAAAGA AAGGACGAAT CTTGCCATCC TCAAAAGCGA	5520
GAATCTTGGT CGCTACCTTA TCCAAGAAAT AGCGGTCGTG ACTGACTGTT AAAACGGGAC	5580
CTGCAAAACC TTGCAAGAAA TTCTCTAAGA CTGTCAAAGT TGCAATATCT AGGTCATTGG	5640
TTGGCTCGTC TAAAGAAGA ACATTGGTT TTTCCAAAAG CAGTTTGAGG AGATAAAGAC	5700
GTTTTTCTC ACCCCCTGAC AATTTCTCAA TCAAAGTCCC ATGCGTGGAA GGTGGGAAGA	5760
GGAATTGCTC CAGCAACTCA GCGATGGAAG TCGTAGAACC ACCACTGGTC TTGACCTCCT	5820
CTGCCACTTC CTGCAGGTAA TTGATCACAC GCTTGCTTTC ATCCAAACCC TCAATTTGTT	5880
GAGAGAAATA GGCGATGCGA ACAGTTTCCC CAATCACAAC TTGTCCTGCT GTCGGCTCAA	5940
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CAATACGGTC TTTAGCCTGA ACTAAGAGAT TAAAATTTTG CAAAATGGGC TTATTTTCAT	6060
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GATTGATACG AGCTTGTTC TTGGTCGCAC GCGCCTGCGG TTGTCTGCGC ATCCAGGCCA	6240
ATTCTTGTTT GTAGAGTTGT TCTTTTTTGT GAAGAAGAGC CGCGTCGCGC TCATCCTGTT	6300

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CCGCCTTTAG GCGAACATAG TCCTGGTAAT TTCCCTGGTA CTCGGTCAAG CCTGCACGAT	6360
CCAACTCGAA AATCCGTGTT GACAAAGCGT CTAAGAAATA ACGATCGTGA GTGATAAAAA	6420
GGACGGTCTT CTTAGAATTT TTCAAAAAGA GGGTCAGCCA CTCAATAATC GCAATATCCA	6480
GATGGTTGGT CGGCTCATCC AAAAGCAAGA GGTCTGGTTC GCCAAGTAAG ACTTGTGCCA	6540
ACTGTACCCG TCTTCTCAGA CCACCTGACA ATTCCCCAAC AGGAGTAGAT AAGTCTTGAA	6600
TGCCCCAATTT GCTAAGAACG GTCTTGACCT GACTTTTCGAT TTCCCAAGCT TGGAGAGAGT	6660
CCATCTCTGC CATGACACGT TCCAAACGCG CCTGCTTGTC CTCACTATAG TCGAGCATAA	6720
TCAATTCATA CTCACGAATG AGCTGGATTT CCTTGAGTTC ACTAGATAGA ACCGTATCCA	6780
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AGCTTACAAA ATAGAAAAAA TCTGTAAGAA ATTCCTACA GATTTATCTA TGTTTCCTTA	20580
TTTCTTACAA ACCAGGTGCT TGTCCAAGTT CGGCTGCAAG CATCCAAATT GTTTTATCTG	20640
TTTCAGTTTT AGCGCTGCA AAGATACCGT TTGTCACATC GTCACCTTCT TCATCAGTGA	20700
CATCCAAACC TTTTGGAAA AGTTCTGACA AGTAACGGTA GATAACAAGA ACACGTTCCA	20760
AGCTTTCTTC AACATTACGG TATTCACCAG CTCTCTCTC GATTTCACTA TTTGAAGGA	20820
ACTCTGTCAA TGTAAGAAT GGGCTTCCAC CGAGTGTAAT CAAGCGTTCA CTGATTTCAT	20880
CCAATTGACC GTCAAGAGCT TCCATGTACT CATCCATTTT TGGATGCCAT ACAAGGAAAC	20940
CACGACCATG CATATACCAG TGCACCTGGT GCAAAGCAAC GTGAGCTACA TACAAATCAG	21000
CAACAGCTTG GTTCAAGACT TCCTTTGTTT TTGCCAATGC	21040

(2) INFORMATION FOR SEQ ID NO: 56:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2387 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 56:

ATTCTTAATA CGATTAAAAG GCTTATTACT AAAAGAAAAT TTCAGTTAGA TGAACATAAC	60
TTGCTCGTCA AATCCCGATT TAACGAGATG TTTGGGGAAA ATAAATATT TGAAGCATT	120
GATAACTTAT TTGATATTAT AGATCGTGAT AGGGGCAAAA ATTATCCTAA ATCAGATGAG	180
TTGTTTAGTG AGGAGTACTG TTTATTTTAA AATACAAAGA ATGTTACTAA AAACGGATTT	240
TCATTGATA CAAAGCAATT TATCACTAAA ACAAGGATA AATTACTTCG AAAAGGCAAA	300
CTTGAGCGTT ATGATATAGT CTTGACAACA AGAGGTACTG TTGGAAATGT AGCGTACTAC	360
GATGAATTAA TAAAATATAA ACATTTACGT ATAAATTCAG GTATGGTAA ATACGTCCC	420
AAGACACCAA ATCTAAATCA GAAATTTATT ATCCATGTTT TAAGGAATAA TAATTATAGT	480
CGAGTGATAT CAGGAAGTGC TCAGCCTCAG TTACCAATTA CAAAATTAAA AAAAATACTT	540
CTCCCCCTCC CCCCCTAGC CCTCCAAAAT GAGTTCGCAG ACTTTGTAGT CCAGGTCGAC	600
AAATCACAAT TGGCAATCCA AAAATCTCTG GAAGAACTTG AAACCTTGAA GAAATCTCTG	660
ATGCAGGAGT ATTTTGGCTG ATATTCTGCC ATTGTAATTA CGGTAATGAT TTGTTATAAT	720
ACTTCAAAGG AGGAAATCAG ATGGTAGTAA AAACAAGAAA ACAAGGAAAT TCAATCACCA	780
TTACGATTCC AAGTGAAATT AATATTCCAA GTGGTGTAA ATACGAAGCG AAATTGTTAC	840

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CAAGTGGTGA GATTATCTTT ACTCCTGAAG AATTGGGGCA GCAGGTTTCT TATGTATCTG	900
ATGATGCCTT TGA CTTAAAT TTAGATAAAA TATTTGACGA ATACGACGAT GTTTTCAAAG	950
CTTTGGTGGG AAAATGACAA TCTATTTGAC AGAAAAGCAA ATTGAAAAAA TAAATGCTTT	1020
AGCAATTCAA CGGTATTCTC CAAATGAGAA AATTCAAACA GTTAGTCCTT CTGCCTTAAA	1090
TATGATTGTG AACTTACCAG AACAAATTTGT CTTTGGGAAG CCTCTTTATC CAACAATTTT	1140
-----	
TGATAAAGCA ACGATACTAT TTGTCCAATT GATAAAGAAG CATGTTTTTG CTAATGCTAA	1200
TAAAAGAACT GCTTTCTTCG TTTTGGTCAA ATTTTACAA TTAAACGGCT ATCGTTTTTC	1260
TGTAACGGTA GAAGAAGCAG TAAAAATGTG TGTAACCATC GCAGTAGAAG CTTTAACTGA	1320
TGAAAAAATG ACAAGCTACT CCAATGGAT TTCTGAACAT TCTGTTAGAG AAAAGGTCAA	1380
AAAGTAACCT AGTATGCTGG ATTTGAATGA GCACAAGAAA ATAAATGAAC AGACAATATT	1440
AGAATTCGT AATGCAGAAA CTGATATTGT CTCTTTTAT TGATGAATAA GAAAGTGAGA	1500
AATTATGGAA TCAAAAGTTA CAATTATCAT GCAAGAAATG TTACCTCTTT TAAATAATGA	1560
ACAATTACTA GCGTTGAGAG AGAGTTTAGA ACATCATCTA GTAGACGGAA AAAAGCAGCA	1620
GAAGTATTCG AATAATAACC TGTGCAACT ATTTATTACC GCCAAGCAGG TAGAGGGCTG	1680
TAGCTCAAAA ACAATTCGTT ATTATCAGAG GACGATTGAA AACTTCTTTA ATGCTATTAA	1740
AGAGTCTGTG ACACAACTCA CAACAGATGA TTTAAGGAGT TATTTAGCAA ATTACCAGTC	1800
TGAAAAGGAT TGTAGTAAGG CAAATTTAGA CAATATTAGG CGTATATTGT CTCTTTTTTT	1860
TGCTTGGCTT GAGCAAGAGG ATATATCATT AAAATCCCA TTCGACGGAT ACAGAAAATT	1920
AAGACTGAGC AAAATGTGAA GGAACTTAT ACTGATGAAC ATTTGGAAAT TATGCGTGAT	1980
AACTGTGAAA ATTTGAGAGA TTTGGCAATA ATAGACCTAC TAGCATCCAC AGGTATGCGT	2040
GTAGGGGAGC TTGTACAGTT GAATCGTTCA GATATTGATT TTGAAAACAG AGAGTGTGTT	2100
GTCTTTGGTA AAGGAAACAA GGAGAGACCA GTATATTTTG ACGCTCGTAC GAAAATTCAT	2160
TTAAGAAATT ATCTTAACGA CAGAAAAGAT AGTCACCCTG CTCTTTTGT AACGCTAGTT	2220
GGAAAAGTCC AGAGGCTTGG AATTGCTGGT GTAGAGATTC GCTTAAGAAA GTTAGGAGAC	2280
AAACTCGGCA TACAAAAGGT TCACCCACAT AAGTTCAGAA GAACTTTAGC GACTAAGGCA	2340
ATTGATAAAG GTATGCCTAT CGAACAAGTC CAAAACTGC TAGGTCA	2387

(2) INFORMATION FOR SEQ ID NO: 57:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 10669 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double

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(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 57:

ATATTAAAGC GACTTTCTGT GCGCTAGGGA AAAATGTTCC TGGGAATGAG GACTTGGTGA	60
AGAGGATAAA ATCTGAAGGT CATGTTGTTG GAAACCATAG CTGGAGCCAT CCGATTCTCT	120
CGCAACTCTC TCTTGATGAA GCTAAAAAGC AGATTACTGA TACTGAGGAT GTGCTAACTA	180
AAGTGCTGGG TTCTAGTTCT AAATCATGC GTCCACCTTA TGGTGCTATT ACAGATGATA	240
TTCCGAATAG CTTGGATTG AGCTTATCA TGTGGGATGT GGATAGTCTG GACTGGAAGA	300
GTAAAAATGA AGCATCTATT TTGACAGAAA TTCAGTATCA AGTAGCTAAT GGCTCTATCG	360
TTTTGATGCA TGATATTCAC AGTCCGACAG TCAATGCCTT GCCAAGGGTC ATTGAGTATT	420
TGAAAAATCA AGGTATACC TTTGTGACCA TACCAGAGAT GCTCAATACT CGCCTAAAAG	480
CTCATGAGCT GACTATAGT CGTGATGAAT AAGCAAGAAA AAATAGGTCT GTTAGATATT	540
TGACAGACTT ATTTTTTACA GAATATAGTA CTACTTAAAA AATGTTTTAT GCTATAATTG	600
ATGAATAAAA TAGAAGGAGA AGCATATGAA TACCTATCAA TTAAATAATG GAGTAGAAAT	660
TCCAGTATTG GGATTGGA CTTTAAAGGC TAAGGATGGA GAAGAAGCCT ATCGTGCAGT	720
GTTAGAAGCC TTGAAGGCTG GTTATCGTCA TATTGATACG GCGGCCATTT ATCAGAATGA	780
AGAAAGTGT TGTCAAGCAA TCAAAGATAG CGGAGTTCCA CGTGAAGAAA TGTTCGTAAC	840
TACCAAGCTT TGGAAATAGC AGCAAACCTA TGAGCAAACCT CGTCAAGCTT TGGAAAAATC	900
TATAGAAAAA CTGGGCTTGG ATTATTTGGA TTTGTATTG ATTCAATTGC CGAACCCAAA	960
ACCGCTCAGA GAAATGACG CATGGAAAAC TCGCAATGCG GAAGTTTGA GAGCGATGGA	1020
AGACCTCTAT CAAGAAGGGA AAATCCGTGC TATCGGCGTT AGCAATTTTC TCCCCATCA	1080
TTTGGATGCC TTGCTTGAAA CTGCAACTAT CGTTCCTGCG GTCAATCAAG TTCGCTTGGC	1140
GCCAGGTGTG TATCAAGATC AAGTCGTAGC TTAATGTCGT GAAAAGGGAA TTTTATTGGA	1200
AGCTTGGGGG CCTTTTGGAC AAGGAGAACT GTTTGATACC AAGCAAGTCC AAGAAATAGC	1260
AGCAAATCAC GGAAATCGG TTGCTCAGAT AGCCTTGGCC TGGAGCTTGG CAGAAGGATT	1320
TTTACCACTT CAAAATCTG TCACAACCTC TCGTATTCAA GCTAATCTTG ATTGCTTTGG	1380
AATTGAACTG AGTCATGAGG AGAGAGAAAC CTTAAAAACG ATTGCTGTTC AATCGGGTGC	1440
TCCACGAGTT GATGATGTGG ATTTCTAGAA AATCATAAAA AGAATTGTAC ATTATTCTAA	1500
TTTTTGATAT AATAGTCAGC AGGAAAGAAA GTCTTATGGC GTTCTTCAAG CGAGCTTGGG	1560
ATAGTGGGAG CCAAGTAGGG CAAAATAAAG GGCTGGCGCT TTCTGTAGTA TTTTCAAAAA	1620

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CAATGAAGTA ATAAATTAGG GTGGAACCGC GTTCTGACG CCCCTAGGTT AAATCAACCT	1680
AGGATTGTCA GATGTGGTTC TTTTGCTTAT TCAGTCTATT GTGTGAAAGA AAGGAGAGCC	1740
GTGGACAACC TTTATCTTGT AAAAGACGAT AGTCAACTAG CTACATTTCG TGATTTTGTA	1800
GTAAGAAATA CTGAAAAGTT GAAAGATTAT CAATCTTTTT TAAAGAATGA ACTTGCAGTC	1860
TGTGATTTAC CGCAAGCTGT TATTTGGTCA GATTTTAATG CTGCTACACA GATTATTAGG	1920
GAAAGTGCTG TTCCAACCTA TACAAATAAT AGACGAGTGG TTATGACGCC TGATTTAGCT	1980
GTGTGGAAG AATTGTATTT GTATCAGTTG ATGGACTACG AGTGTCTGA GCAAACTCAA	2040
GCAATAGAAA GTCAGTATCA TTCTTTATCT GAAAATTTCC TCTTACAGAT TGTAGGACAT	2100
GAGTTAGCTC ATTGGTCGGA CATTTTTTAG ATGATTTTGA TGGTTATGAC TCTTATATCT	2160
GGTTCGAAGA GGGGATGGTT GAATATATTA GTCGCAAGTA TTTCTTGACA GAAGAGGAAT	2220
TTCAAGCGGA AAAAATTTGT AATCAATCTC TCGTAGAACT TTTTCAGAAG AAGTATAGTT	2280
GGCATTCAAT GAATGATTTT GGTCTTCGA CTTATGATAA GAACTATGCA AGTATTTTTT	2340
ATGAATACTG GCCCAGCTTT TTGACAGTAG ATAAGTTGGT AGAAAATTTA GGTAGTGAC	2400
AAGCGTCTT AGATTCTTAT CATTTATGGG CAAATACAGA AAAAATTTT CCCTTGTTAG	2460
ATTGGTTTGT TCAGCAGAAA TTAATTGAAA AAGAAATATA AAAACTAAAG GAGTAAACAA	2520
TGTCTAAGAA ATTAACATTT CACTGCATCA GTGGCAGAGA CCTCCTTACA GTCCGGCTGC	2580
TCCACGCTCA GCACTAGAGT GCCTGAGCTA GACGCAGTAC TAACTCGTCT TGCCTCGTAT	2640
GATCGACGAG GCAGACTCGT GTCGCAAGTA ATTATTTTTT ATTAAGGAGT ATTCAATGTC	2700
TAAGAAATTA ACATTTCACT GCGTCAGTGG CAGAAACCTC CTTACAGTCG GACTGCCCTA	2760
CGCTCAGCAC TAGAGTGCCT GAGCTAGACG CAGTACTAAC TCGTCTTGCC TCGTATAATC	2820
GACGAGGCAG ACTCGTGTCT CAAGAAATTA TTTTTTATTA AGGAGTATTC AATGTCTAAG	2880
AAATTAACAT TTCAAGAAAT TATTTTGACT TTGCAACAAT TTTGGAATGA CCAAGATTCT	2940
ATGCTTATGC AGGCTTATGA TAATGAAAAA GGTGCGGGGA CAATGAGTCC TTACACTTTC	3000
CTTCGTGCTA TCGGACCTGA GCCATGGAAT GCAGCTTATG TAGAGCCATC ACGTCGTCTT	3060
GCTGACGGTC GTTATGGGGA AAACCCTAAC CGTCTCTACC AACACCACCA ATTCAGGTG	3120
GTCATGAAGC CTTCTCCATC AAATATCCAA GAACCTTACC TTGAGTCTTT GGAAAAATTG	3180
GCAATCAATC CTTTGGAGCA CGATATTCGT TTTGTTGAGG ACAACTGGGA AAACCCATCA	3240
ACTGGTTCAG CTGGTCTTGG TTGGGAAGTT TGGCTTGACG GAATGGAAAT CACTCAGTTC	3300
ACTTATTTCC AACAAGTCGG TGGATTGGCA ACTGGCCCTC TGACTGCGGA AGTTACCTAT	3360

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GGTTTGGAGC GCTTGGCTTC TTACATTCAA GAAGTAGACT CTGTCTATGA TATCGAGTGG	3420
GCTGATGGTG TAAAATACGG AGAAATCTTT ATCCAGCCTG AGTATGAGCA CTCAAAATAT	3480
TCATTTGAAA TTTCGGACCA AGAAATGTTG CTTGAAAACT TTGATAAGTT TGAAAAAGAA	3540
GCTGGTCGTG CATTAGAAGA AGGCTTGGTA CACCCTGCCT ATGACTATGT TCTCAAATGT	3600
TCACATACCT TTAATCTGCT TGACGCGCGT GGTGCCGTAT CTGTAACAGA GCGTGCAGGC	3660
TATATCGCTC GTATCCGTAA CTTGGCCCGT GTCGTAGCCA AAACCTTTGT CGCAGAACGC	3720
AAACGCCTAG GCTACCCACT TTTGGATGAA GAAACAAGAG CTAACCTCCT AGCAGAAGAC	3780
GCAGAATAAA GAGAGTGACA AATTACGAAA ATGGGCGAAC AGAGTGAGCC CTGAGCCAGT	3840
TGCCGCGAGT ATGAAGGTAT CCTTAGTGAA ACTAAGGATA CTAGGCCAAA TTGGAGACTT	3900
TTGGCTCCAA TTTTAGCAAT GAAACAACGA AGTTGGTTGC TTGCGTGCCA ATCACATAAG	3960
GCAAACTGGA AAATAAAAAG ATACTTTTCG GAGAAAAAAC ATGACAAAAA ACTTATTAGT	4020
AGAACTCGGT CTTGAAGAAT TACCAGCCTA TGTGTTTACG CCAAGTGAAA AACAACTAGG	4080
CGAAAAAATG GCAGCCTTCC TCAAGGGAAA ACGCCTGTCT TTTGAAGCCA TTCAAACTTT	4140
CTCAACACCA CGTCGTTTGG CTGTTCTGTG AACTGGTCTT GCAGACAAAC AGTCTGATTT	4200
AACAGAAGAT TTCAAGGGTC CAGCAAAGAA AATTGCCTTA GATAGTGATG GAAACTTCAC	4260
CAAAGCAGCT CAAGGATTTG TCCGTGGGAA AGGTTTGACT GTTGAAGATA TCGAATCCCG	4320
TGAAATCAAG GGTGAAGAAT ATGTCTATGT CACTAAGGAA GAAATTGGTC AAGCAGTTGA	4380
AGCCATTGTT CCAGGCATTG TGGATGTCTT GAAGTCACTG ACTTTCCCTG TCAGCATGCA	4440
CTGGGCGGGA AATAGCTTTG AATACATCCG CCCTGTTTAC ACTTTAACTG TTCTCTTGGA	4500
TGAGCAAGAG TTTGACTTGG ATTTCCCTGA TATCAAGGGA AGTCGTGTGA GTCGTGGCCA	4560
TCGTTTTTTG GGACAAGAAA CCAAGATTCA GTCAGCATTG AGCTATGAAG AAGACCTTCG	4620
TAAGCAGTTT GTAATCGCAG ATCCATGTGA ACGTGAGCAA ATGATTGTTG ACCAAATCAA	4680
GGAAATTGAG GCAAAACATG GTGTACGTAT CGAAATTGAT GCGGATTGTC TGAATGAAGT	4740
CTTGAATTTG GTTGAATACC CAACTGCCTT CATGGGAAGT TTTGATGCTA AATACCTTGA	4800
AGTTCAGAA GAAGTCTTGG TGACTTCTAT GAAGGAACAC CAGCGTTACT TTGTTGTTCTG	4860
TGATCAAGAT GGAAAACTCT TGCCAAACTT CATTTCTGTT CGTAACGGAA ACGCAGAGCG	4920
TTTGAAAAAT GTCATCAAAG GAAATGAAAA AGTCTTGGTA GCCCGCTTGG AAGACGGAGA	4980
ATTCCTTCTG CGTGAAGACC AAAAAATGGT GATTTCAGAT CTGTTGAAA AATTAAACAA	5040
TGTCACCTTC CATGAGAAGA TTGGTTCTCT TCGTGAACAC ATGATTCTGA CGGGTCAAAT	5100
CACTGTACTT TTGGCAGAAA AAGCTAGTTT GTCAGTGGAT GAAACAGTTG ACCTTGCTCG	5160



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TGCAGCAGCC ATTTACAAGT TTGACTTGTT GACAGGTATG GTTGGTGAAT TTGACGAACT	5220
CCAAGGAATT ATGGGTGAAA AATACACCCT TCTTGCTGGT GAAACTCCAG CGGTGGCAGC	5280
TGCTATTCGT GAACACTACA TGCCTACATC AGCTGAAGGA GAACTTCCAG AGAGCAAGGT	5340
CGGCGCAGTT CTAGCCATTG CAGACAAATT GGATACGATT TTGAGTTTCT TCTCAGTAGG	5400
ATTGATTCCA TCAGGTTCTA ATGACCCTTA TGCCCTTCGT CGTGCAACTC AAGGTGTGGT	5460
TCGTATCTTG GATGCCTTTG GTTGGCACAT TGCTATGGAT GAGCTGATTG ATAGCCTTTA	5520
TGCATTGAAA TTTGACAGTT TGACTTATGA AAATAAAGCA GAGGTTATGG ACTTTATCAA	5580
GGCTCGTGT GATAAGATGA TGGGCTCTAC TCCAAAAGAT ATCAAGGAAG CAGTTCTTGC	5640
AGGTTCAAAC TTTGTTGTGG CAGATATGTT GGAAGCAGCA AGTGCTCTCG TAGAAGTAAG	5700
CAAGGAAGAA GATTTTAAAC CATCTGTTGA ATCACTTTCT CGTGCCCTTA ACCTGGCCGA	5760
GAAGGCAGAA GGGGTTGCTA CGGTTGATTC AGCACTATTT GAGAATGACC AAGAAAAAGC	5820
TTTGGCAGAA GCAGTAGAAA CACTCATTTT ATCAGGACCT GCAAGTCAGC AATTGAAACA	5880
ACTTTTTCG CTTAGCCCAG TCATTGATGC TTTCTTTGAA AATACTATGG TAATGGCTGA	5940
AGATCAGGCT GTCCGTCAAA ATCGTTTGGC AATCTTGTC CAACTAACCA AGAAAGCAGC	6000
TAAGTTTGCT TGTTTTAACC AAATTAACAC TAAATAAAAT TTGATAAACG GACTTTATCT	6060
TATTACAAAG GAGAAGAAAT GGATCCGAAA AAAATTGCTC GTATCAATGA GCTTGCTAAA	6120
AAGAAAAAAA CAGAAGGCTT AACACCAGAA GAAAAAGTGG AACAAGCCAA ACTACGTGAG	6180
GAGTACATCG AAGGTTATCG CCGCGCTGTT CGTCACCACA TTGAAGGAAT CAAAATTGTG	6240
GACGAAGAAG GAAACGATGT TACACCAGAA AACTACGCC AAGTACAACG TGA AAAAGGA	6300
TTACATGGCC GTAGTCTTGA TGATCCAAAT TCATAATAAT ACTCTTCGAA AATCAAATTC	6360
AAACCACGTC AGCTTCACCT TGCCGTACTT AAGTACAGCC TGCGGCTAGC TTCCTAGTTT	6420
GCTCTTTGAT TTTCAATGAG TATATGTATT CTTCTTTTAA ACAAAGATAG ATGAAACGAT	6480
AACAAAGAGA CTAGCAGTTT GTGTTTGCTA GTCTTTTTTC GCTAAAAAAG GAACCATAAT	6540
GGTTCCATAA AACTATCATT AGTAACTTGC ACCGGCTGTA GCGTCTGCGT CACCACCGTG	6600
GCCTCCAGCA TCCCCTGAAT CAGAAGCGCC AGAAGTAGCA TCGGCGTCTC CATGACCTCC	6660
GGCAGCAGGA GCAAATGGTC CGCTACCACC CACCAAACGT TGACCAGTCT CTTT TAGGTA	6720
CCAGTCAAGC CATGGTTGGA AGTTAAAGAC GATTTCAATG ATACCAGCGT ATGATCCATC	6780
AGCATAGTAC ATTGCTTGGT AGTTGTGAGT GTTGATAACA CCTGCAGGAG AACCTGGAAC	6840
GATCGTACGG ACGTATTCTT GGTTCGGTT GCGAAGTGTT CCGATAACCC ACTCTACGTT	6900

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CTTCATACGT GCTGGTGGAA GAGAACCATG AACAGTCGAC ATACGGCTAC CTGATTGAGG	6960
TGGTACACGT TTAGCGAACA TAGTGTCTGG ATCTTGGTGA GCGTTGTTGT AGTAGAGGAA	7020
TTGGTTGTTG TCGTCAGCGT ATGTCAATTC AAATGGCATA GCTTCAAGA ACATATCAAT	7080
TTGGTTAACT GTTAGGATAC CGTGGTCCAA TTTGACATAG GTATCACCAG AAACAGCACC	7140
AGTGAATGCT GCAACTTTTT CTACCCATTC TGGATCGTCA GGGTCAACTT CTGTGATGGT	7200
TGTAGCGATT GGTTTCCAC AATCCAAGTC TTCTGATTCT ATTGGTTTG GTTTTTTCAA	7260
TTTCGAAACG ACTCCTACGT ATTTAACAAA GTTATCTAAG CAAGTTTCAA GGAATTTAAC	7320
AGTGCCCTCG TTGGTGATAT TTCCGTGTGT ATCAAAAGCT TCCTTAGCTT TACCAAGAAG	7380
GAATTCGTTA CCTGGAAGCG TGTAGGCATT AACACCTGGA GCATCAAGGA TTTTACGAAG	7440
GTGAACCTGA GCACGTGATG TTCTTGGTC ATAGTATGAT GCACCCACAA TCATAACAGG	7500
CTTGTTTTCA AATGGATGAA CTTCGTATGA AAGCCATTCA AGTACAGATT TGAGTGAAGC	7560
TGAGATAGTG TGGTTATGCT CAGGAGTAGC AATGATAACA CCATCTGCAC GAGTAATTTT	7620
GTTATATAAA TAACGTAATT GGAACTTTC ATCCCATTTT TCATCTTGGT TAAACATTGG	7680
AACCTCGTCA ATTTCAAGAA CTCTAATTC AAATTTGAGT TTGAAGTAGC GACGGATAAA	7740
TTCCAAGAGC TTACGGTTAT ATGATTGATC GTAGTTTGAT CCAACAAGTC CAACAAATTT	7800
CATTCTTTTT GGTCTCTAT CTACAAATT TTCCCAGTCA AAGTCTTCAG CATCTTTGCG	7860
AAGTAATCT TGTGCATTAC GTAATTTTC TGTGATTTTT ACAAGATAC GGAAGTCATC	7920
AAAGATGGCA TCCAATTCT TGATAACATC AAGGTCAACC AAGTCGCCAC TTGGGTAAA	7980
TGCTTGAAGA GAGTGTGAGA GCAAGAATTC ATCTGGAAGA ACATTTGCCT TGATTTCAGG	9040
AGCATTCAG ATTTGACGAA GTTGCAATTG GGCACGAGAT GAACCAAGCG TACCGTAAGA	9100
AGCACCTGTA ATCATGATTG GTTTGTTCAA AAGTGGGTAA ATACCATAAG ACAACCAAGC	9160
AAGAGCGCTC ATCAAAACAG CTGGAATAGA GTGATCATAC TCAGGAGTAC CGATAATAAC	9220
GCCATCTGCC TCTTCGATTT TAGCAGCAAT TTCCAATATT TCAGCAGGTA CTTGCTTGTC	9280
AGCTGGTTTG TTGAAGACAG GAATGGCCTT GATTTCAACA AGTTCAATTT CAGCTTTGTC	9340
AGTAAAGTGT TTTTGCATGT ATTGAAGCAA TTGACGTTT GTAGAACGTT TTGAATTTGT	9400
TCCAACAATA GCAATAAGTT TTAACATGAG ATTTCTTTC TCTTTTACA TAATACAATT	9460
TTAAATTC ATTGAAACAG TTGTCTCTAT AGAGTAGGAA TTCTGAAGA ACAGCTTAGG	9520
TGGCCTTCTT TATCGATGAG GATGACTTCG ATGCCCTCCA AACTTTTCGAC TTGCCAGAGG	9580
ATAGAAGCAG GTCTTTCTCC AAAGAGTCGA GTCGTCCAGA TTTCGCCATC GACTGATTTA	9640
TCAGAGATGA TTGTTAGACT CGCTAGTTCC GTTTCAACAG GATATCCTGT TTGACTGTCA	9700

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AAAATGTGAT	GGTAATCTTG	TCCATCGACG	GTCAGGTGAC	GTTCATAAAT	GCCTGAAGTC	8760
ACGACAGATT	TATTGACAAC	AGGGATGGTC	ATTAAATGAT	TTCCCCTAGG	ATTGGCTGGG	8820
TCTTGAATCC	CGATTTGCCA	TGGGTTATCC	CCTCTTGCCT	GATTTTTTCC	AATGGTCAGG	8880
ATATTCCTTC	CCAGATTGAT	CAAGGCAGAA	GTCACCCCTT	CTTTCCTAAG	AAATTGGGCA	8940
ACCTTATCCG	CACTGTATCC	TTTGGCTAAA	CAACCTAGAT	CGATCTTCAT	TCCTTTCTGT	9000
TTTAAAAACA	CAGTAGAAGT	AGAAGAATCT	AACTCGATAC	CATGAGGATT	GATTAGAGGC	9060
AGCACCGATT	CAATTTCTTG	AGGCTGGGCG	ACCTTGGCAT	CTGAAAAACC	GATACGCCAG	9120
GTTTGAATTA	AGGGACCAAT	GCTGATATTG	AGGTGGCTAG	AGAGCGCTAG	GCTATGCTCT	9180
AACCCAAGTG	AAATCAGCTC	AAACAGGTCT	GGATGAACCG	TGACGGGGGC	TATTCCTGCT	9240
TGATAATTGA	TTTCCATCAA	CTCAGATTCT	TGACTATTGG	CGTTGAAGCG	GTATTCAAGT	9300
TCTTTGAGCA	AGTCAAAGGA	TTTTTGGAGA	AAGATATCGG	CTTGCTCATC	CACTAATGAA	9360
ATAGTGATAG	TAGTCCCCAT	TAGCCGTTCA	GAATGTGAAC	GAAGAGTCAA	GCTACCAACT	9420
CCTTTCTCTT	ATAGAAAATA	AGTTGTAATA	TCAAATAATC	ATCTAAATTG	AAGCCCTTAC	9480
ATTTCATTTT	CATGTTATTA	TAATACCATA	AAGTTAGAAT	TTTCACAAAC	AAAATTTGGA	9540
AAAAGTCAAG	AAATATGCTC	ATAAAATTCA	TCAGGCTTGA	AAACAGGATA	AATGGGGAAT	9600
TATTTTTGAT	AAAAAATGCT	GAAATAATAG	TACCCCCCTT	GTAAACGCTA	ACGGTAAATG	9660
GTATACTACT	AAGGTAAATT	TAGAATGAAG	GCAGGAAATT	TTTATGAGTA	AAATCGTTGT	9720
AGTCGGTGCT	AACCACGCTG	GTACAGCATG	TATCAATACC	ATGTTGGATA	ATTTTGGAAA	9780
TGAGAACGAA	ATTGTTGTAT	TTGACCAAAA	CTCTAACATC	TCTTTCCTAG	GATGTGGAAT	9840
GGCTCTTTGG	ATTGCTGAAC	AAATTGACCG	TGCTGAAGGC	TTGTTCTATT	CTGATAAAGA	9900
AAAATTTGGA	GCTAAAGGTG	CTAAAGTTTA	CATGAAGTCA	CCTGTTCTTT	CAATCGACTA	9960
TGATAACAAA	GTAGTTACAG	CGGAAGTTGA	AGGAAAAGAG	CACAAAGAAT	CATACGAAJA	10020
ATTGATTTTC	GCTACAGGCT	CTACACCAAT	CTTGCCACCA	ATCGAAGGTG	TTGAAATTGT	10080
TAAAGGAAAC	CGCGAATTTA	AAGCAACTCT	TGAAAACGTA	CAATTCTGTA	AATTGTACCA	10140
AAATGCTGAA	GAAGTTATCA	ATAAACTTTC	TGACAAGAGC	CAACACCTCG	ACCGTATCGC	10200
CGTTGTTGGT	GGTGGTTACA	TCGGTGTTGA	ACTTGCTGAA	GCCTTTGAAC	GTCTTGAAAA	10260
AGAAGTTGTC	CTTGTTGATA	TCGTTGATAC	TGTCTTGAAC	GCTTACTATG	ACAAAGACTT	10320
CACACAAATG	ATGGCGAAGA	ACTTGGAAGA	TCACAACATC	CGCTTGGCTC	TAGGTCAAAC	10380
TGTTAAAGCA	ATCGAAGGTG	ACGGTAAAGT	TGAACGCTTG	ATTACTGACA	AAGAAAGCTT	10440

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TGACGTGGAT ATGGTTATCC TTGCAGTTGG TTTCCGTCCA AACACAGCCC TTGCAGGTGG	10500
TAAGATCGAA CTCTTCCGCA ACGGTGCCTT CCTTGTAGAC AAGAAACAAG AAACATCTAT	10560
CCCAGACGTT TACGCTGTTG GTGACTGTGC GACTGTTTAT GACAATGCTC GTAAAGATAC	10620
AAGCTATATC GCTCTTGCTT CAAATGCTGT GCGCACTGGT AACGTTGGT	10669

## (2) INFORMATION FOR SEQ ID NO: 58:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 7542 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 58:

CGCGTAATA GATACTTTAT GATAGAATAA AGAACAAAGAT TGACAAGTAA GAGGAAACAT	60
TATGCAAAAT CAAACACTCA TGCAATACTT TGAATGGTAT CTGCCCCACG ACGGTCAACA	120
CTGGACGCGT CTGGCTGAAA ATGCTCCACA CCTAGCTCAT CTGGGGATCA GTCACGTCTG	180
GATGCCACCA GCCTTCAAGG CAACCAACGA AAAAGATGTC GGCTATGGGG TCTATGACTT	240
ATTTGACTTA GGAGAGTTCA ACCAAAAAGG GACTGTCCGC ACCAAGTATG GTTTCAAAGA	300
AGACTATCTT CAAGCCATTC AAGCCCTTAA AGCACAGGGA ATTCAACCTA TGGCCGATGT	360
AGTTCTCAAC CACAAGGCTG CTGCCGATCA CAGGGAAGCC TTTCAGGTTA TCGAAGTTGA	420
TCCTGTAGAC CGTACAGTTG AACTTGGAGA ACCCTTCACC ATCAATGGCT GGACTAGTTT	480
TACCTTCGAT GGTCCGCAAG ATACCTATAA TGGCTTCCAC TGGCATTGGT ACCACTTCAC	540
CGGTACAGAC TACGATGCCA AACGCAGTAA ATCTGGGATT TATCTGATCC AAGGGGACAA	600
CAAGGGCTGG GCCAACGAGG AATTGGTCTA TAACGAAAAC GGAAACTACG ACTACCTCAT	660
GTATGCCGAC CTAGACTTTA AACATCCTGA AGTCATCCAA AACATCTATG ACTGGGCTGA	720
TTGGTTCATG GAAACGACTG GTGTAGCTGG TTTCCGTTTG GATGCCGTTA AGCATATTGA	780
CTCTTCTTTT ATGCGCAACT TCATCCGCGA TATGAAGGAA AAATACGGTG ACGATTCTTA	840
TGTTTTTGGT GAATTTTGGA ACCCAGACAA GGAAGCCAAT CTGGACTATC TCGAAAAAAC	900
GGAAGAACAC TTTGACCTTG TCGATGTTTG TCTCCACCAG AATCTCTTTG AAGCCAGTCA	960
AGCTGGCGCA AACTATGACC TTCGTGGCAT TTTCACAGAT AGCCTGGTTG AACTCAAGCC	1020
TGACAAGGCT GTGACTTTTG TCGACAACCA CGATACCCAA CGAGGACAAG CCCTTGAGTC	1080
TACCGTTGAA GAATGGTTCA AGCCAGCAGC CTATGCCCTC ATTTTGTTAC GCCAAGACGG	1140
CCTTCCATGT GTCTTTTACG GAGACTACTA TGGGATTTC A GGCCAGTATG CTCAAGAAGA	1200

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TTTCAAAGAA ATCCTTGACC GCCTCCTAGC CATCCGAAAA GATTGCGCCT ATGGAGAACA	1260
AAATGACTAC TTTGACCATG CTAAGTGTAT CGGTTGGGTA CGTTCAGGTG CTGAAAATCA	1320
ATCCCCAATC GCAGTCCTTA TCTCAAATGA CCAAGAAAAC AGCAAGTCAA TGTTTGTCGG	1380
TCAAGAATGG ACTAATCAAA CCTTTGTAGA TTTACTTGGT AACCACCAAG GTCAAGTTAC	1440
AATTGATGAG GAAGGTTATG GACAATCCC TGTCTCAGCT AGATCCGTAA GTGTCTGGGC	1500
AGTCAATACC ATCTAATAGC TCATAATAAC CAAGCTAGGT CCAAGCGGAT TTGGCTTTTT	1560
TGTATTCACA AAAAGACCTA CCCAAATGGA TAGATCTTTA CTTGATTACA ATTTACCTGC	1620
TACTGCATCC AACAATTCTT GGATCTTAGG TTGGTTGCTT CCTCCTGCCA TGGCCATATC	1680
TGGTTTACCA CCACCACGTC CATCGATGAT TGGTGCTAAT TCTTTGACAA GGTTCCTGTC	1740
ATGAAGGTCT TTTGTCTTGC TTGCTACAAG GACATTGACT TTGTCACCGA TAGCGGCAAC	1800
TAGGACAAGA AGATCAGAGT AGTCTTTTGT TTTCCAGTTA TCTGCAAAAAG TACGAAGGGC	1860
ACCGGCATCG GATACAGACA CTTGACTAGC AATGTAACGA TGACCGTTGA CTTCTTAAC	1920
ATCTTTGAAG ATATCGCCTG CGGCTGCAGC TGCGGCTTTT TCTTTCAACT CAGCATTTTC	1980
TTTTTGAAGT TGACGAAGTT GTTCTTGAAG TCCTTCTACC TTGTGAGGTA CTTCTTGAC	2040
TTGAGGTGCT TTCAAGGTTG CTGCGATAGC TTTAAGAGCA TCCTCTTGTT CACGATAGGC	2100
TTCAAAGGCT TCCTTACCAG TCACTGCCAA GATACGGCGA GTTCTGAAC CGATTCTTC	2160
TTCTTTGACA ATTTTGAAGA GACCAATCTC AGAAGTGTG TCAACATGAG TACCACCACA	2220
AAGTTCAATA GAGTAGTCAC CGATAGTCAC GACACGAACT TCCTTGCCGT ATTTCTCACC	2280
AAAGAGGGCC ATAGCTCCCA TTTCTTTAGC AGTGTCAATA TCCGTTTCAA CTGTCTTCAC	2340
TTCAAGTGCT TCCCAAATTT TCTCGTTAAC TTGCTGTTCA ATCGCACGAA GTTCTCAGC	2400
AGTTACTGCT TGGAAGTGGG TAAAGTCAAA GCGAAGGAAT TCAACTTCGT TAAGAGATCC	2460
TGCCTGTGTT GCGTGGTTTC CAAGGATATT GTGAAGGGCA GCGTGAAGCA AATGAGTCGC	2520
AGTGTGGTTT TTCATGACAC GGTGACGGCG ATTGCTATCA ATTGCCAAGG TATATTCTTG	2580
GTTCAAGGCA AGCGGTGCAA GGACTTCAAC TGTATGAAGG GCTTGACCAT TTGGGGCTTT	2640
CTGAACATTG GTCACAGTAG CCACAACCTT ACCTGACTCA TCCAAGATTT GTCCGTAGTC	2700
AGCTACCTGT CCACCCATTT CAGCATAAAA TGACGTTTCC GCAAAGATAA GAGAGGCAGT	2760
TCCTTCTGAA ACAGCTCCTA CTTCTGCATT GTCAGCAACG ATAGCTACCA ATTTAGAAGA	2820
CAATTGGCTA GCATTGTAGT TGAAGACACT TTCTACAGTG ATGTTTTGAA GAGTTTCATT	2880
TTGCATACCC ATTGAGCCAC CCTTGACAGC TGACGCACGC GCGCGTTCTT GCTGTTCTTT	2940

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CATGGCTGCT TCAAAACCTT CACGGTCTAC AGTCATACCA GCTTCTTCAG CGATTTCCTC	3000
AGTCAATTCA ACTGGGAACC CATAAGTATC ATAGAGTTTG AAGACATCTG AACCAGCGAT	3060
AACAGATTGA CCTTTTCTT TCAAGTCTGC TACAATGCCT TGGGCAAAGT GTTGACCTGA	3120
GTGAAGGGTA CGGGCAAATG ATTCTTCTTC GCTCTTAACG ATTTTCTCAA TAAAGTCACG	3180
TTTCTCAAGC ACTTCTGGGT AGTAGCTTTC CATGATTTTT CCAACAGTTG GAACCAATTT	3240
GTAAAGGAAA GGCTCCTTGA TACCCAATTT TTGACCATGC ATAGAAGCAC GACGGAGAAG	3300
ACGACGAAGA ACATAACCAC GACCTTCATT TCCTGGAAGG GCACCATCAC CGATAGCAAA	3360
TGAAAGAGAA CGAATGTGGT CTGCGATAAC CTTGAAGCTC ATGTTGTCGC CATCTTGGTC	3420
ATAAACCTTA CCAGACAATT TCTCGACTTC ACGGATAATC GGCATGAAGA GGTCCGTTTC	3480
AAAGTTGGTC TTAGCCCCCT GGATAACGGC CACCAAACGC TCCAAACCAG CGCCCCATC	3540
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TTGTGACAAA ACGATGTTCC AGATTTC AAT ATAACGGTCG TTTTCAATAT CTTCTGCAAG	3660
CAGGCGAAGA CCGATATTTT CTGGGTCAAA GGCTTCCCCA CGGTCAAAGA AGATTTCCTGT	3720
ATCTGGTCCA GAAGGTCCCG CACCGATTTC CCAGAAGTTG TCCTCAATTG GAATCAAGTG	3780
ACTTGGATCC ACTCCCACTT CAATCCAGCG GTTGTAAAGAA TCTTTATCGT CTGGATAGTA	3840
GGTCATGTAA AGTTTTTCAG CAGGGAAATC AAACCATTCA GGGCTTGTCA AAAGCTCATA	3900
AGCCCCAAGTG ATAGCTTCGT CACGGAAGTA ATCCCCGATA GAGAAGTTCC CCAGCATTTC	3960
AAACATGGTA TGGTGACGCG CGGTCTTCCC TACGTTTTCG ATGTCGTTGG TACGGATAGC	4020
CTTTTGGGCA TTGGTAATAC GTGGATTTTC AGGGATAATG GTCCCGTCAA AGTATTTCTT	4080
AAGGGTTGCT ACCCCAGAGT TGATCCACAA AAGAGTTGGG TCATTTACAG GAACCAAAC	4140
TACTGATGGT TCTACTGAGT GACCTTTGGT CGCCCCAGAAA TCAAGCCACA TTTGGCGTAC	4200
TTGTGCACTA GATAGTTGTT TCATATTGTC TCCTTATTCA CTTGTTTAAT GTGATTGGCT	4260
TTCCAGCATT TCCACATAGT CAATCGCGAC ACAGAGGGAA ATGACTAGGT CTGCATAAGC	4320
GTCTTCAAGA ACCGTTACGG TATAGGTAGA AGTCAGATGG AAGAGTTCCT TCTTAATTTT	4380
CGCAATCAAC TGATCGCGAT CATCCAGCAA TTTGAAATTC AAATCCCAGA TATTGCCCTC	4440
GATACGAAGA CCTAGATTAT CAAACTCATA CTTATCTCGC CAGAAGGTCA ACTTCTTACG	4500
AATGACAAAA CTCGAGCCAT CCCGAAGCTG AATTTCAAAA CGAGGAAGCA AGGTCAAGAT	4560
TTCTTTACTA ATCTCACTCA CTTGTTCAAC AGCCGCATCA TAGATGGTAA AGGTTTTAGG	4620
AATCTTAAAA AATGATCCCT CCACCTGATA GGCAATTTCT CCCCTGTCAT CTTTGATAGC	4680
GAAGCGTTTCG CCTCCAAGAC GAAACTTTTG TTTGACAAGA AATGTTTCA TCAACACCTC	4740

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CAAAAATCAA AAGACAAGCT CATATCACGA AGGGCGAAAA ACCGCGGTAC CACCTTCATT	4800
CAATGAACCT GTCAATTCTCT TGTTCCTTATG CAATTGTATG ATTGAGTAGC ATGACTTCCT	4860
AGCTTAGATG GCTCGCAGCA CCGCCATTC TCTGGACTAA GACAAGTGAA AATCAATTCT	4920
CAACTTTCTT ATTATAACGT TTTTSTAAGC TTGCGTCAAC TGGAAATGAT CTCCGTTGAA	4980
TTAGACCAAT TCCCTACATC TCTGATTACT TTTTCAGGAT ATATTTTTTC TTAGTGCCAT	5040
TTTTCTTTTT ATCCCAAATT TTCATATTAC TAAACACAGC TACTAGAATA TTTCCAAATA	5100
TAAAGGTGCC TATCACCCAA TATATGGACT CAGTTGTTAG GTATTGTGCGA TCCAAGCCAT	5160
CCTTTAAATG GAATAGTATA GCAGTTTGGT TAACAATCAT AAAGGTTGGC CAGAACTTT	5220
TTTTGAAAAA AGTAGACATT TTCATTATTT GTTGCCGCTT TCTGTAAGGT TAATACTCAA	5280
TAAAAATCAA AAAGCAAAC AGGAAGCTAG CCTCAAGCTG TACTTGAGTA CGGCAAGGCA	5340
ACGCTGACGT GGTTCGAAGA GTATAGGCTT AGTATACTAC TAGGCAAGCA AATAAACAAA	5400
TAAACAATA GAATAGAAAA AGATAGGGCT CTAATAACTG ACTTCTATT CTTAAAAACG	5460
AACCAGCTTG ACTGATTGCT CTTCTTACGT TTATCTCCTA CTTCCGATAC ATTTTAAACT	5520
GTAGGAAGAG GTCGCTATAT TTCCCTGTCC ATTTATGGTC AAATTTCTCA TAACTTCTA	5580
GGTGTTCAT GGTTCACAA TCGGGATAGA AGGCCTTATC TTCCTTTGTT TCCTCTGGGA	5640
GCAATTCCTT CGCTGGTAGG TTTGGTGTG AATAGCCGAC ATACTCCGCA TTTTGGAGAG	5700
CATTTTCAGG TTTCAACATA AAGTTGATAA AGGCATAGGC TGAGTTTTGG TTTTAACTG	5760
TTTTGGGAAT GACCAIATTG TCAAACCAA GATTGCTGGC CTCTGTCGGT ACCACATAAC	5820
GTAGATTTTC ATTTTTTTCT AACATTTGGC TGGCTTCACC AGAGAAGGTC ACGCCGATTG	5880
CAACATTATT CTGAATCATA TAGCCCTTCA TCTCGTCCGC AACGATAGCC TTGATATTTG	5940
GAGTCAGTTT GTAGAGCTTA TCCACTGTCT CTTCCAAGTG CTGCAGATCC TTGGAGTTGA	6000
GGCTGTAGCC GAGGGAATTG AGTCCTAGTC CCAGCACCTC ACGCGCCCCA TCAAAGAGCA	6060
TGATAGAATT CTTATACTCC GGCTTCCAAA GGTATCCCA ATGCTCAGGC GCTTCATCTA	6120
CCATGGTTTC GTTGTAGACA ATTCTAAGG TTCCCCAGAA GTAAGGGATG GAGAATTTAT	6180
TACCTGGGTC AAAGGACTGG TTGAGAAACT CTGGTCCGAT ATTTTCGATT CTTCAATTT	6240
TTGAATAATC AAGCGGAACC AAGAGGTCTT CGTCCTTCAT CTTGTTAATC ATGTATTCAC	6300
TTGGAATGGC AATATCGTAG GTCGTTCCAC CCTGCTTTAT CTTAGTGATC ATGGCTTCGT	6360
TGGAGTCAAA AGTCTCGTAC TGAACCTGAA TTCCTGTTTC TTCTGTAAAC TGAGTCAAGA	6420
GTTCAGGATC GATATAGTCT CCCCAGTTAT AGATAACCAA TTTTGGACTA TCTCGACTAT	6480

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TGATTTTACT ATCTAAATGA GTCGCAATTC CCCACAAGAC AAGGATAATC GCTGCAATTC	6540
CTGCTAAAAA TGAATAGATT TTTTTCATGC TTGCTCCTCC TTCTCACGAG AGATAAAGTA	6600
ATAACCTACA ACTAGGATAA TACTAAAGAG AAAGACTAGA GCAGACAGGG CATTGATTTC	6660
TAAGGAAATC CCCTTGCGAG CACGAGAGTA AATCTCGACT GATAGGGTTG AAAAGCCATT	6720
TCCTGTTACA AAGAAGGTCA CGGCAAAGTC ATCTAACGAA TAGGTGAAGG CCATGAAATA	6780
ACCAGTAATG ATAGACGGAG TCAGGTAAGG AAGCATGATT TCCTTGAACA TCTGAAATTG	6840
ACTAGCTCCC AAGTCATAGG CCGCATGAAT CATGTCGCCA TTCATTTCTT TGAGTCGAGG	6900
CAAGACCATC AAGACCACGA TAGGAATGGA GAAGGCCACG TGACTAGATA GAACGGTCAA	6960
AAAGCCAAGT GAAAACTTGA GTTGGGTAAA GAGAATCAAG AAGCTAGCAC CAATCATAAC	7020
GTCAGGCGCA ACCATGAGGA TATTATTGAG TGATAGAAAG GCTTCTTGGT ATTTCTTACG	7080
AGACTGGTAG ATGTAAATGG CACCAAAAGT CCCGATAATG GTCGCTATCA AGGCTGATAG	7140
GAAGGCCAAG AAAAATGTCT GAGCCAAAAT CAGCATGAGT CTCCCATCTC CAAACATGGT	7200
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ATAGCCAATC AAGTAAAGA TAGGCAGGTA GAGGACCAGA AAGACCAGTC CCAGATAAAG	7320
GTTGGCAAAT TTTTTCATCG TTCTCTCTT TCCTTAGTCA CCCACATGGT GATGAACATG	7380
GTCAGGATGA GAATCACACC GATGGTTGAA CCCATACCAT AGTTGTCAAT GGTTAGAAAA	7440
TTCTGCTCAA TAGCCGTCCC CAAGGTGATA ACGCGTTCCC ACCAATCAAA CGGGTCAGCA	7500
TGAAGAGACT CAAACTTGGG ATAAAGACCG ACTGAACCCC GG	7542

(2) INFORMATION FOR SEQ ID NO: 59:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 9223 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 59:

AAAACCAAAT TCCGGTATTT TAACCTATGC TGTAATACC ATGAAGTCTG TCATGACAGA	60
TCAGGTCTAT AACATTAAGG TTGAGACAGA AAATGGAAAT TATGTTGGTG AAGCTAGCCA	120
TGTTTGGTTC CTTTGGACAA ATTACTTCGC TGATAAGAAA ATCTTTGAAG AAAACAAGGA	180
CGGCTATGCC AACATTTTGA TTCTGAAAGA TGCCTCTATA TTCTCCAAAT TATCCGTCAT	240
TCCTGATTTA TTAAAAGGGG ATGTTGTCGC AAATGATAAT ATCGAGTATA TCAAAGCGCG	300
TAATATTAAA ATCTCTTCAG ATAGTGAATT GGAGTCAGAT GTTGACGGAG ATAAATCAGA	360



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TAACCTACCT GTAGAAATCA AAGTCCTAGC TCAGCGAGTA GAAGTATTTT CAAAACCGAA	420
AGAGGATTAG TATATAGAGA AAGCCTTTT TAAGGCTTTT TGTATACTTT AAAAGATAGT	480
TCCTTTAACA ACGGACATTC CTGGCAAATA GTTTACAAA AATAGTATAC TGGATTTCATT	540
GAGTTTGAAA ACGTTTGGCT AAAATTGAA TGAATACTTT AGGAGACAAA TTGATGGAAT	600
TGAGTGCTAT TTACCATAGG CCTGAGTCGG AGTATGACTA TCTTTATAAG GATAAGAAAC	660
TCCATATTCG AATTCGAACT AAGAAAGGGG ACATTGAAAG CATCAACTTG CACTATGGGG	720
ACCCCTTTAT CTTTATGGAG GAGTTTATC AGGATACAAA AGAAATGGTC AAGATAACTT	780
CTGGTACCTT ATTTGACCAT TGGCAGGTTG AAGTGTCACT TGACTTTGCA CGTATCCAGT	840
ATCTCTTTGA GCTCAGAGAT ACAGAAGGTC AAAATATTTT GTATGGCGAT AAAGGGTGTG	900
TGGAATAATC TCTAGAAAAT CTTTCATGCA TTGGGAATGG ATTTAAGTTG CCTTAGCTTC	960
ATGAGATTGA TGCCTGCAAG GTTCTGACT GGGTTTCAA TACGGTATGG TATCAGATAT	1020
TTCTGAAAG ATTTGCCAAT GGCAATGCTC TATTAAACCC AGAAGGGACT TTAGACTGGG	1080
ATTCATCTGT CACACCTAAG AGCGATGATT TCTTGGTGG TGATTTACAG GGGATTATTG	1140
ATCATATGAA TTAATTGCAA GACTTGGGTA TTAAGGACT ATATCTTTGT CCCATCTTTG	1200
AATCTACAAG CAATCACAAG TACAATACGA CAGATTACTT TGAAATTGAC CGTCATTTTG	1260
GAGACAAGGA GACCTTTCGG GAACTGGTGG ATCAAGCGCA TCATCGTGGC ATGAAAGTCA	1320
TGCTGGATGC GGTATTTAAT CATATTGGTT CGCAATCTCT TCAATGGAAA AATGTCCTCA	1380
AAAATGGTGA ACAGTCTGCT TATAAGGATT GGTTCATAT TCAACAATTC CCAGTGACAA	1440
CTGAAAAGCT AGTTAATAAG AGAGACTTAC CCTATCATGT TTTTGGTTTC GAGGACTATA	1500
TGCCTAAGCT AAATACAGCC AATCCAGAGG TCAAGAATTA TCTTTTAAAG GTTGGCACTT	1560
ATTGGATTGA AGAGTTTAAT ATCGATGCTT GGCCTTTGGA TGTGGCTAAT GAGATTGACC	1620
ATCAGTTCTG GAAGGATTTT CGTAAGGCAG TTTTAGCTAA AAATCCTGAT CTTTATATCC	1680
TAGGAGAAGT CTGGCATACT TCTCAGCCTT GGCTAAATGG AGATGAGTTC CATGCCGTCA	1740
TGAATTATCC TTTATCTGAT AGTATCAAGG ACTATTCTT ACGAGGAATT AAGAAGACAG	1800
ACCAGTTCAT CGATGAAATC AATGGAGAGT CTATGTATTA CAAGCAGCAG ATTTAGAGG	1860
TCATGTTTAA TCTCTTGGAT TCACATGATA CAGAGCGAAT CCTGTGGACG GCCAATGAAG	1920
ATGTTCAACT GGTAAATCA GCCTTAGCCT TTCCTTTTTT AAAAAAGGA ACACCGTGCA	1980
TTTATTACGG AACCGAGCTA GCCTTGACTG GAGGACCAGA TCCAGATTGT CGTCGTTGTA	2040
TGCCTTGGGA ACGTGTATCA AGTGACAATG ATATGCTGAA CTTTATGAAG AGGCTGATTA	2100

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AAATTCGGAA ATACGCGTCA GTAATCATTT CGCATGGCAA GTATAGCCTT CAAGAAATCA	2160
ACTCTGATCT AGTAGCTCTG GAATGGAAAT ACGAAGGACG GATCCTCAAA GCAATATTCA	2220
ACCAATCAAC AGAAGATTAT CTTTATAGAGA AAGAAGCAGT AGCACTAGCA AGCAATTGCC	2280
AAGAATTGGA TAATCAGCTT GTCATCTCTC CAGATGGATT TATGATTTTC TAAAACTAG	2340
TTGATGAAGA TTATGGTACA TTTCATACCT TATATAGTAT AATAAGGCTA GTTACTAAAC	2400
TTGTAAAGGA GAACTTAAAT GAATTGTAGA GGACATGAAA CAAGACAAAG AATTGTTAGA	2460
GATTTTGAAG TTCAGCCTAA AGCACATATT AAGCTGTTAG CAAATCAACA AAAACATAGT	2520
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GGCAAGAAGG AAGTTATTCA GTGTTGCATG GGTGCGGCAA GGGATTTTTT AGAACTAATT	2640
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CAAGAATATG ACAATACAGG GAGTGGAAAT TTATAACCTG AAAAGTGGAA TGAACTGCA	2760
AAGCAGCTTT ATAATGCTAT AATGTGCTTG ATTATTTTAT GGAATGCTAA GCCGGATACA	2820
CCTTTATTTA ATTTTAAAGA CGAAGTAATT AAGTATAAAA CATATGAGCC TTTTGAAAGC	2880
AGTATAAAAA GAGTAAATAC TACTATAAAG AATGGTAGTA AAGGGAAAAC TCTGACTGAG	2940
ATGATTAATG GCTACAGAGC GGATAACGAT ATTAGAGATG AAATTTGTAA CTTTAATATT	3000
CTGAAAAATA AAATTCGTGA TATGAAAAAC CAACAAGGAA ATACAATGGA ATCTTACTTT	3060
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CTATACAATA TAGTTAAAT ATCAGTAAAA ACAACACTTT ATTGAGGTAT TGGATACGCT	3180
TTGCTAATAG CCTAATAATC ACATGTGGAG TGTGTCTACA ACGAAAAAGG TGATAATCCT	3240
TGATTTCAAG CTATTTTATA AGCATTTTGT CTTTGTAGAT AAAGGCAATT TTGACAATAA	3300
AAATCCTAAA AGGTGAATCG TTATAGATGT ATTTGTAGAT ATCGTTTGCG CATCGAAAAA	3360
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GATAGAAAAA CAAGAAATAA CCCACCATTT TTGGTGCCTT ATGCTTTTTT ATGCTATAAT	3480
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AGTCGTTATG AAAATGGAAC GAGTTCAGTC TCTACCGAAT TAATAGACAT CATTTGTCAG	3660
AAGTTTAATG TATCTTATGT CGATATTGTA GGAGAAGATA AAATGCTCAA TCCTGTTGAA	3720
GATTATGAAT TGACTTTAAA AATTGAAATT GTGAAAGAAA GAGGTGCTAA TCTATTATCT	3780
CGACTCTATC GTTATCAAGA TAGTCAGGGA ATTAGCATTG ATGATGAGTC TAATCCTTGG	3840
ATTTTAATGA GTGATGATCT ATCTGATTTG ATTCATACGA ATATCTATCT AGTAGAAACT	3900

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TTTGATGAAA TAGAGAGATA TAGTGGCTAT TTGGATGGAA TTGAACGTAT GTTAGAGATA	3960
TCTGAAAAAC GGATGGTGGC CTAATGGAAA TCCAAGATTA TACTGATAGT GAATTCAAAC	4020
ATGCTTTAGC AAGGAATCTT CGTTCACCTGA CAAGAGGAAA AAAGTCCAGT AAGCAACCTA	4080
TAGCGATTTT GCTTGGAGGG CAAAGTGGTG CCGGTAAGAC TACAATTCAT CGTATTAAAC	4140
AGAAAGAATT TCAAGGAAAT ATTGTTATCA TAGATGGTGA TAGTTTTCGT TCTCAGCATC	4200
CACACTATTT AGAACTGCAG CAAGAATATG GCAAAGACAG TGTAGAATAT ACCAAAGATT	4260
TTGCAGGAAA AATGGTAGAG TCTTTAGTAA CAAAATTGAG TAGTTTGAGA TACAATCTTT	4320
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ATAAGGGATA TGAAGTACAA TTGGCCTTAA TTGCGACAAA GCCTGAATTG TCGTATCTAA	4440
GTACTCTTAT CCGTTATGAA GAACTGTACA TTATCAATCC AAATCAAGCA CGCGCAACTC	4500
CAAAAGAACA TCATGATTTT ATTGTAAATC ATCTAGTTGA TAACACACGA AAATTGGAAG	4560
AACTAGCTAT CTTTGAAAGA ATTCAAATTT ACCAACGAGA TAGAAGTTGT GTATATGATT	4620
CAAAAGAAAA TACAACCTCA GCAGCAGATG TTCTTCAAGA GTTACTCTTT GGGGAGTGGA	4680
GTCAGCTAGA GAAGGAGATG TTGCAGGTGG GGGAAAAGAG ACTTAATGAA TTACTTGAAA	4740
AATAACAAT TGATATTTT AGGAGAATAG AAATGAGAGG GTTTAATAAC AAGATAAAGT	4800
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TTCAATTTGCA TACACCTGTT TCTTATGATT ACAAGCTATT TTCTAATTGG ACTGCAACGA	4920
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AAGTTGATAA GACAATTTTT TTTAGTAATT TTGATAAGGT TGTTTTTCT AGTTCAAAAG	5040
AATATATTAC TTTTCTTATG TTAGCAGAGG CAATCATAAA AAATGGAATA GAAATAGTTG	5100
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TAATGAAAAA TTATCCGATT TATGATATAC ATCTCATAT TTACATGGA GTAGAAATTA	5220
GTGCAGCAGA TAAATTGCAT ATTGTATGTA TATATGATTA TGAACAAGAA TCATCGGTTA	5280
ATCAATGGTT AAGTGAAAAT ATTATAAGTG AGAAAGATGG AAGTTATCAA CATTCACCTGA	5340
CTATAATGAA GGATTTCAAT AATCAAAAAA TAGTTAACTA TATTGCTCAT TTCAATAGTT	5400
ATGACATTTT GAAAAAAGGT TCTCACTTAT CAGGTGCATA TAAACGAAAA ATTTTTTCTA	5460
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TATTCTCTAT AAAGAAGTTG GTGTATTAAG TTGGGACAA AAAGTTGTAG CCATGCTTGA	5580
TTTTTTATTA GCATATAGTG ATTATTCTAA AGACTTCAGA CCATTGATTA TTGATCAGCC	5640

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TGAAGACAAT CTAGACAATC GTTATATTTA CAGGCATTTA GTTCAGCAGT TTAGAGATGT	5700
GAAAGCTCAA CGTCAAATTA TTTTAGCAAC ACATAATGCT ACAATTGTAA CAAATTCTAT	5760
GACAGATCAA GTTGTTATTA TGGAGTCAGA TGGAGTTAAC GGATGGATTG AATCACAGGG	5820
ATATGTTAGT GAAAAATATA TAAAAAATCA TATCATCAAT CAATTAGAGG GAGGAAAAGA	5880
TTCCCTTCAAG CATAAAATCT CTATATATGA GACGGCTTTA TCAGAGTAGA GTCAGAAAAA	5940
GTAGGTTAGA AATTTAGCCT ACTTTTTTCT TTGTCGGACA GGCATAGTGT ACATCTGAGG	6000
TCCAAGTCCT CTGTGGATAT TTGCTGCAGA TGAAACCAAT AGCGACTCCT AAGCCTGAAT	6060
ATCGTGAGGT AGGGGGGATA GGAAGGAATT AGCGAAATCA AGGTTCTACA AACAGAATCG	6120
TGACTTGAAG CCATATATAG CGGATGAGGA ACTCTAAAAT CCAAATAGGT GTCGTAACCT	6180
ATATACGTAA ATTACGAGAG TAAACTAGGA AAGATGTACG GCTTATTCCG TGAGCGTTTA	6240
GGACGTAGTA CAACGAATCA TGGGAGTCAG CTGAACACAT AGTATTGAAG AAATTCTCTGT	6300
AATGGAAATG GAGCGAAGAA GTGAACAATT AAATGAATAC CTCTCTAATT AAATTGTCA	6360
ATTCTAATTC CTGGTATGAA AAGACAGTGA CCTGAAAATG TAAACGATGG GAGCTGATCA	6420
TAAATATAGG ACGGTACATG CAGTGGTGT AGAGATTAGT CCTTACTTGA TTTGTGATAA	6480
CTTCCCCAAA TTTCTTCTGC TATACTTTTC TCAACTTTTA AAAATCCAAC TAAGAATTTT	6540
ACCTGGGGGT TTGGGGGCGG AGCACTAAGT TATCTTATCG TTAGCTGTCA AAAGCTGAG	6600
GTTTTGATAG GCTGGCGATA TGATTTTTGG GATATTGTGG ACACAATATC TGAGCTCGCA	6660
AAGCCTTACA AGAATGAAAA TCAGTTGTG GAAAAGTCTA CTGACATTGT ATGGTAGCTC	6720
ACATTGTCAG TACAAGTATT TTGGAAAGGA AGTAGCAGTA TGAAACGAGA TGTGCGTGAT	6780
ATTGGGAAAC AATTTCTTTT AACAGAAGCA GAAGAAAAGC AAATTCTAGC TTTGATGAGA	6840
GAGCGGGGAG AGACTAATTT CTCTGATTTT CTTCGTAAAA GTTTACTTTC CTCTGATTTA	6900
CAAAAACAGA TGGAGACATG GTTTGCCCTC TGGCAATCCC AAAAAGTAGA ACAAATCAGT	6960
CGTGACGTTT ATGAAGTTTT AATCTTGGCA CAGTCAGAAC GTCAAGTCAC CCAAGAGCAT	7020
GATCTATTTC TCTTAACGTG CGTGCAGGAA TTGATTCAAG AGGTTGCAAA CACCATACCC	7080
CTCAGTAAAG AATTTCTGTA GAAGTACATG AGGTAAGCAC ATGGAACATC GTTACCGAAC	7140
CAATCTCAAG AAAGTGTTTT TGTCTGATAG TGAGTTGAAC CAACTAAATA TAAATATCGA	7200
TCAAAGTGGT TGTAATCCT TTTCTGAATA TGGGAGACGA ACTCTACTCG ATCCTGGTAT	7260
GAATTTTATC ACGATTGACA CAAACGGTTA CCAAGATTTA GTGTTTGAGT TAAAGAGGAT	7320
TGGCAATAAT ATCAACCAGA TTGCTCGAAG TGTTAATCAA TCTCAGTTAA TTTCTGGTGA	7380
AGAATTGCAG GAGTTGAAAA AAGGAATTGG TGAATTGATA AAAGAAGTTG ATAAGGAATT	7440

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TAATCTGCAA GCGCAGAAGC TAAAGGAGTT CCATGGTCAT CACTAAACAC TTTGCCATTC	7500
ACGGAAAGAG TTACCGCAGA AAGCTTATCA AGTACATTCT CAATCCTGAG AAAACCAATA	7560
ATCTTGCCCTT GGTGTCGGAC TATGGCATGA AGAATTTTCT GGACTTTTCT AGCTATGAGG	7620
AAATGGTGCA GATGTATCAT GAAAATTTCA TCAGCAACGA TACGCTTTAC GATTTTCGCC	7680
ACGACAGGAT GGAAGAAAAT CAACGAAAAA TACACGCTCA CCACATCATT CAGTCTTTCT	7740
CGCCAGAGGA TCATATCACT CCTGAACAAA TCAATCGGAT AGGTTATGAG ACTGTGAAGG	7800
AATTAACTGG TGGCAAATTT CGTTTTATCG TTGCGACCCA TGTTGATAAA GACCACCTGC	7860
ACAATCACAT CATTATCAAT TCAGTAGATA GCAATTCTGA CAAAAAGCTC AAGTGGGACT	7920
ACAAGGTGGA GCGAAATCTT CGCATGATTT CTGACCGTTT TTCTAAATC GCAGGTGCTA	7980
AAATCATTGA GAACCGCTAT TCTCACCAGC GGTATGAAGT CTATCGTAAG ACTAATCACA	8040
AGTATGAACT CAAGCAGCGA CTCTATTTTT TGATGGAACA TTCTAGGGAC TTTGAGGATT	8100
TCAAAAAGAA TGCTCCGCTA CTACATGTGG AGATGGATTT CCGTCACAAG CATGCCACCT	8160
TTTTTATTAC GGACTCAACT ATGAAACAGG TGGTGCGTGG CAAGCAACTC AATCGCAAGC	8220
AGCCTTACAC AGAAGAATTT TTTAAGAACT ACTTTGCCAA AAGAGAAATA GAAAGTCTCA	8280
TGGAATTTTT ATTGCTGAAA GTTGAGAATA TGGATGATTT ACTTCAGAAA GCAAAACTTT	8340
TTGGACTAAC TATCAATCCT AAACAAAAGC ATGTTTCTTT TCAATTTGCA GGAGTGGAGG	8400
TAAAGGAGAC AGAGCTAGAC CAGAAAAATC TTTATGATGT AGAGTTTTTC CAAGATTATT	8460
TTAAAAATAG AAAAGATTGG CAAGCTCCAG AAAGTGAGGA TTTCGTTCAA CTTTATCAAG	8520
AAGAAAAGTT ATCCAAAGAA AAAGAACTTC CAAGCGATGA GAAGTTCTGG GAGTCCTATC	8580
AAGAGTTCAA GAGTAACAGA GATGCCCTTC ATGAATTTGA GGTGGAGTTG TCACTCAATC	8640
AAATTGAAAA AGTAGTGGAT GATGGAATTT ACGTCAAGGT CAAGTTTGGT ATTCGTCAGG	8700
AGGGACTTAT CTTTGTGCCG AACATGCAGC TTGATATGGA AGAGGATAAG GTGAAGGTTT	8760
TCATCAGGGA AACCAGCTCC TACTATGTCT ACCACAAAGA CGCTGCCGAG AAAAATTGTT	8820
ATATGAAAGG TCGAACCTTA ATTAGACAGT TCAGCTATGA AAATCAAACC ATTCCATTAC	8880
GCAGAAAAGC GACAGTCGAT ATGATTAAAG AGAAGATTGC GGAAGTGGAT GCTTTGATTG	8940
AACTGGAAGT AGAAAATCAA TCTTATGTCA CGATTAAAGA TGAGTTAGTG CATGAACTAG	9000
CAGCGTCTGA ATTGAGAATC AATGAGTTGC AAGAACGAAT GTCAACCTTG AATCAAGTAG	9060
CAGAATATCT ACTGGCTTCA GTTGAAAGTA AGCAAGAAAT GAAATTAAAT CTTTCAAAAC	9120
TGAATATAAC TGAGAATATC AGTGCTAATA TTGTTGAGAA AAAATTGAAG AGCCTGGGGA	9180

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ATCAACTGGA ATTGGAAAGG GGCAGGTATG AAAAGATGGT AGT 9223

(2) INFORMATION FOR SEQ ID NO: 60:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6827 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 60:

TCTGCTGGCT ACCATCATCT GACTTGGGCA AGACCAAAGT CTTAGTTACA ACTGTATTCT	60
TCTCAGCATT TTCAATAACT GGCAATGCCG ACTGAAGCGT ATCTTTTCTT GTTTTTGTAG	120
CTGGTCCAGT TTCTTTTTC TGTCCGAAC CAACCAGGAC AAAAAGGAAA GCTAGACTAA	180
CAAGAACTAT TTTTTCATT TCTTCTTCT TTCTTTTGA AATTAAAATA GAATAAGACT	240
GGGAAGTGCT CCCAGCCTTG ATGTTTATAG AGCTGCACGC AAACGTGCTT CTGCATTTTC	300
TACATTACGG ACAGAGCGTG GTAGGAAGGC ACGAATATCG TCTTCCTTGT AGCCAACTTG	360
CAGGCGTTTT TCATCTACAA GGATTGGGCT CTTTAAAATT CTCGGTCTTT CCATAATCAG	420
ATTGAGAACT TCATTGACAC TCAAATCTTC AATATCCACT CCAAGGGCTT TGGCATAGCG	480
ATTTTGTAGAC GAAACGATGC TGGCTATTCC GTTATCTGTT TTGGTTAGAA TATCCAGTAA	540
TTCTTCTCTC GTAATTCCTT CTTTACCAAG GTTTTGTCTT TTATAACTTA ACTGGTGGGC	600
ATTGAGCCAG GTTTTGTCTT TTTTACAGCT AGTACAACCT GAGACTGTAT AAATTTTAAT	660
CATGTACCTA CCCCTTTCGC TACATGTTAC TATCAGTTTA GTCTATTATA CCATAAAAAA	720
CATCCGACTT GCGACCTATT TTTAATTTT TTTGACTTTT TTCGTCATTT TCGTACTTTT	780
TTCTTGACAA ACAACTAAAT GACTATCAAC TCTTTGGAG CTAGGGTCAA TAATTCACAA	840
CCTGTCTCTG TAATCAGGAT ATCATCCTCG ATACGAACGC CATATTTGCC TTCCGATATAG	900
ATACCTGGTT CATCGGTCAA GGCCATACCT GTCTTAATAG TTTCTGTAGA AGTCTGACTA	960
AAGTAGGGTT CCTCATGGAT ATCCAGACCA ATACCSTGGC CAATGCCGTG AGTAAAGTAG	1020
TCACCATAAC CTGCCTCAAT GATAATATCA CGAGGGATT TGTCAAAGTC ACGGAAACCT	1080
AAGCCTGCCT TAGCTTGGTC AATCAAGGCT TGGTTAGCTT TTAGAACCGT ATTGTAAATC	1140
TCTGCCTGCT CATCGCTAAC ATGCCCTAGA TAGATAGTCC GGGTCATATC ACTGACATAG	1200
TGGTCATAGA GACAGCCGAA GTCCATGGTG ATGGCTTCTC CCAACTCCAC TGGTTTGTGC	1260
ATTGGATGGG CATGGGGTTT AGAAGAATTG ATACCGCTAG CTAGGATCGT ATCAAAAGAT	1320
AAGCCAGATG CTCCCAACTC ACGCATGCGG AATCAAGGA AGTTGGCAAT CTCAATTTC	1380

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GT'TTTTCCTG GTTTGATAAA GTCAAGCGCA TCGCGGAAAG CTTGGTCTGA GATAGAACAA	1440
GCCTTGCGAA TCGCTGCAAT CTCTGCCTCA TCCTTAATCA TACGAAGACC TTCCACAAAC	1500
TGAGTTTGTG GAAGCAAGTT CAAACCTGCA AAAGCTGCCT GCATACGGTG GTAATAAGAC	1560
ACTGAAATCT CATCTTCAAA ACCGATACGA GTCAAGCCCA TGTCCTTAAC AATTCCTGCA	1620
ATGACAGCCA ATTCATCAGC ATCAGCCACA ATCTCAAAAC CACTGGTTTC TTGCTTAGCT	1680
GCGATGATAT AGCGAGAGTC TGTCACCTAAG ACCTGACGGT CACGACTGAT AAAGACTGTT	1740
CCGTTTGAGC CCCAAAAACC AGTCAAATAA TAGACGTTTT TAAGATTGTT GATGATGATA	1800
CCATCTAGTT CTTTTTCTTG CATTTTAGCT AGAAATGCTT GTACGCGTTT ATTCATGATG	1860
TAAC'TTTCCT TTCAAATAGT GTCCTGTATA GCTGGCTTCG TTGGCAGCTA CTTCTTCTGG	1920
AGTTCCTGTT ACGATGATGG TTCCACCACC GACACCGCCC TCAGGTCCCA AGTCAATGAT	1980
ATGGTCTGCC GTCTTGATAA CATCCAGATT GTGCTCGATG ACGAGGACTG TATTGCCATC	2040
GTCTACAAAG CGAGCTAAAA CCTTGAGCAG GCGAGCAATG TCCTCTGTAT GAAGCCCTGT	2100
CGTCGGCTCA TCCAGAATGT AGAAAGATTT TCCTGTGAT CGTTTGTGGA GTTCGCTAGC	2160
TAAC'TTCATA CGTTGGGCTT CTCCCCCAGA AAGGGTGGTA GCTGGCTGTC CCAAGGTCAC	2220
ATAGCCTAGC CCTACATCCT TGATGGTCTG GAGTTTGGCT TGAATTTTCG GAATGTGTTG	2280
GAAAAATTCT ACCGCATCGT TGACCGTCAT ATCCAAGACC TGCGAAATAT TCTTTTCCTT	2340
GTAGTGAAC'T TCTAGGGTTT CACTGTTATA GCGGGTTCCG TGGCAAAC'TT CACAAGCCAC	2400
ATAAACATCT GGCAAGAAGT GCATCTCAAT CTTGATAATC CCGTCACCTG AGCAAGCTTC	2460
ACAGCGACCT CCCTTGACGT TGAAACTGAA GCGCCCTTC TTGTAGCCTC GAATCTTGGC	2520
TTCA'TTTGTC TGAGCAAAAA GGTCCAGTAT ATCGTCAAAA ACTCCTGTAT AGGTAGCTGG	2580
GTTAGACCTC GCGCTCCGTC CGATAGGGCT CTGGTCAATA TCAATCAAAC GGTGACATG	2640
CTCAATCCCT GTAATAGTCT TAAACTTACC AGGTTTGTCT GAATTACGGT TGAGCTTCTG	2700
GGCAATGGCT TTTT'TGAGAA TGCTGTTGAT TAGAGTCGAT TTCCCTGAAC CCGACACACC	2760
TGTCAC'TGCG ATAAATTTTC CTAGTGGAAA GCGAGCCGTG ACATTTTGCA AGTTGTTCTC	2820
ACGCGCTCCT ATCACTTCAA TAAAACGACC ATTTCCGACA CGGCGCTCTT CTGGTACTGG	2880
GATGACACGT TTGCCTGACA AGTACTGACC TGTGATAGAC TTGCTGTTGC GAGCCACTTG	2940
CTTAGGTGTA CCTGCTGCAA CAATCTCACC ACCAAAAACA CCGGCACCAG GACCAACGTC	3000
AATCAGATAA TCAGCCTCAC GCATGGTATC TTCGTGCTGT TCCACCACGA TAAGAGTATT	3060
GCCCAAGTCA CGCATCTTTT TCAGACTGGC AATCAGGCGA TCAT'TGTCCC TCTGGTGAAG	3120

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ACCGATTGAC	GGCTCGTCTA	GGATATAGAG	GACACCTGAT	AGGTTGGAAC	CAATCTGGGT	3180
TGCCAAACGA	ATGCGCTGAC	TTTCCCCACC	TGAAAGGGTT	CCTGCTGAAC	GTGACAGGGT	3240
TAGATAGTTA	AGACCCACAT	TATTAAGGAA	GGTCAAACGA	TCCTTGATTT	CCTTGAGAAT	3300
GGGACGAGCA	ATGATGGCTT	CATTTTCAGA	CAAAGTTAAC	TGGCTCACCA	AGTCCAAGTG	3360
GTCAGCGATA	GACAGGTCTG	AGATTTCTCC	AATATGTGGC	CCTTGCTGGC	CGCCACACCG	3420
GACAGACAAG	GCCTGGTCAT	TGAGACGATA	GCCTTGACAG	GTTCCGCAGG	TCAGCTCATT	3480
CATGTAGAGA	CGCATCTGAG	TGCGAGTGTA	ATCGCTATTG	GTTTCATGGT	AACGACGTTT	3540
GATATTATTG	ATAACTCCCT	CAAACGGAAT	GTCGATATCG	CGCACGCCAC	CAAATTCATT	3600
CTCATAGTGG	AAATGGAATT	CCTTACCATC	TGACCCATAG	AGAATCAAGT	TCTTATCTTC	3660
TTCTGACAGG	TCCTCAAAAG	GCTTATCCAT	AGCCACTCCA	AAGACTTTCA	TGGCCTGCTC	3720
TAACATGTTT	GGATAGTAGT	TGGATGAGAT	AGGATTCCAA	GGTGCTAGCG	CTCCCTCACG	3780
TAAGGTTTTG	CTAGCATCTG	GCACTACCAA	ATCAGTATCC	ACCTCCAGCT	TGATGCCCAA	3840
GCCGTACAC	TCACTACAAG	AGCCAAAAGG	AGCATTGAAA	GAAAAGAGAC	GAGGCTCTAA	3900
CTCTGGGACA	GTAAAACCAC	AAACTGGACA	GGCATAATGC	TCAGAGAACA	ACAACTCCGA	3960
GTCGTCCATG	GTGTCGATAA	TGACATAACC	TTCTGCAATA	CGAAGGGCAG	CCTCAATGGA	4020
ATCAAAGAGA	CGACTACGAA	TGCCCTCCTT	GATAACAATA	CGGTCAACCA	CGACATCGAT	4080
ATTGTGTTGC	TTGCTCTTAG	ACAACTCTGG	CACCTCGGTC	ACATCATAGA	CTTCCCCATC	4140
CACACGGACA	CGAACATACC	CGTCTTTCTG	AACCTTCTCG	ATAAACTCT	TATGTTGGCC	4200
TTTTTTCTTG	CGGATGACAG	GAGCCAAGAT	CTGCAAGCGC	TGGCGTTCAG	GTAACCCCAA	4260
AACCTTATCA	ACGATTGCT	CCACAGAAGA	AGCATTGATA	GCTCCATGTC	CGTTGATACA	4320
GTAAGGCGTC	CCCACACGTG	CGTAGAGGAG	ACGCAGATAG	TCATTGATTT	CAGTCGTCGT	4380
TCCCACCGTC	GAGCGAGGAT	TTTTACTAGT	CGTTTTCTGG	TCGATGGAAA	TAGCTGGGCT	4440
GAGACCATCA	ATGGCATCTA	CATCTGGTTT	TTCCATATTT	CCCAAGAACT	GACGAGCGTA	4500
GGCGGACAAA	CTCTCTACAT	AGCGACGTTG	TCCCTCCGCA	TAGAGAGTAT	CAAAAGCCAG	4560
ACTGGACTTC	CCTGAACCTG	ACAAGCCAGT	CACGACAACC	AACCTGTCTC	GCGGAATCTC	4620
CACATCAATA	TTTTTTAAAT	TATGGGCACG	CGCCCCATGA	ATGACAATTT	TATCTTGCAT	4680
CTTTGTTCTT	TCTAGTCCAT	TATTGCTTAC	CATTATACCA	AAAAAAGTGA	GATTCTATTA	4740
CCCCAAAGGC	CGATTTTGTA	GTATAATAGT	ACAGTGTGAA	AAAATCTGAA	AAATGAGAAA	4800
GGATAAGGGA	TATGAAACAA	GTTTTTCTCT	CTACAACAAC	TGAATTTAAA	GAGATCGATA	4860
CGCTTGAACC	GGGTACTTGG	ATCAATCTCG	TCAATCCGAC	TCAAAATGAA	TCACTCGAAA	4920



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TCGCCAACAC	CTTCGATATT	GATATTGCTG	ACCTTCGAGC	ACCGCTCGAT	GCGGAAGAAA	4980
TGTCTCGTAT	TACCAATTGAA	GACGAGTATA	CCCTGATTAT	CGTAGACGTG	CCGGTCACGG	5040
AGGAAAGAAA	TAACCGCACC	TACTACGTAA	CCATCCCGCT	TGGTATTATC	ATCACTGAGG	5100
AAACCATTAT	CACTACGTGT	TTGGAACCAC	TACCTGTCCT	TGATGTCTTT	ATCAACCGTC	5160
GATTGCGTAA	TTTCTATACC	TTTATGCGTT	CACGTTTTAT	CTTTCAAATT	CTTTATCGCA	5220
ATGCAGAGCT	TTACCTAACA	GCCCTTCGTT	CAATCGACCG	CAAGAGTGAA	CAAATCGAAA	5280
GTCAACTGCA	TCAATCAACT	CGTAATGAAG	AATTGATTGA	GCTCATGGAA	TTGGAAAAAA	5340
CTATCGTCTA	TTTCAAGGCC	TCCCTCAAAA	CAAATGAGCG	CGTGATTAAG	AAATTGACCA	5400
GTTCAACCAG	CAATATCAAG	AAATACCTTG	AGGACGAAGA	CCTGCTTGAA	GACACCCTGA	5460
TTGAAACCCA	ACAGGCCATC	GAGATGGCAG	ATATTTATGG	AAACGTCTTG	CATTCTATGA	5520
CAGAGACCTT	TGCCTCTATC	ATTTCTAACA	ACCAGAACAA	CATCATGAAA	ACCTTGCCCC	5580
TTGTGACCAT	CGTCATGTCC	ATCCCAACCA	TGGTCTTTTC	TGCCTACGGG	ATGAACTTTA	5640
AGGATAATGA	AATCCCCCTA	AACGGAGAGC	CAAATGCCTT	CTGGTTAATC	GTCTTTATCG	5700
CCTTTGCTAT	GAGTGTCTCG	CTCACTCTCT	ATCTCATCCA	TAAAAAATGG	TTCTAAGAGG	5760
AGTTCTATG	TCTCAAATTG	ATCTACAAAA	ATCAACTAAG	AAAAACCAAG	AGTTTGTCGA	5820
CATTGCTACC	CAACAATTCA	TCAAAGATGG	GAAAACAGAC	GCTGAAATCC	AGACTATTTT	5880
TGAGGAAGTC	ATTCCCCAAA	TCCTTGAGGA	GCAATCTAAA	GGTACAACCTG	CCCGTTCCCT	5940
ATACGGCGCA	CCAACCTATT	GGGCTCATAG	CTTCACTGTC	AAAGAGCAGT	ACGAAAAAGA	6000
GCATCCAAAA	GAAAATGATG	ACCCAAAACT	GATGATTATG	GACTCAGCTC	TTTTCATCAC	6060
TAGCCTCTTT	GCCCTTGTC	GCGCCCTCAC	AACCTTCTTT	GCGGCAGACC	AAGCTTTCGG	6120
CTATGGATTG	ATTACTCTTC	TATTAGTTGG	ACTGGTTGGT	GGATTTGCCT	TCTACTTGAT	6180
GTACTIONTT	GTTTACCAAT	ACTATGGACC	AGATATGGAT	CGCAGTCAAC	GTCCACCTTT	6240
CTGGAAATCT	GTACTAGTTA	TCCTAGCTTC	TATGTTCCCT	TGGTTGCTTG	TCTTCTTTGC	6300
AACAAGCTTC	CTACCAGCTA	GCCTTAACCC	AGTACTGGAT	CCATTGCCAC	TAGCTATTAT	6360
TGGAGCAGCC	CTCCTAGCCC	TTGCTTCTA	TCTCAAGAAA	CGCTTGAATA	TCCGTAGTGC	6420
AAGTGCAGGA	CCAACACGCT	ATCAAGAATA	AGAAAACGAT	AAAAGCAACT	GCAGGTGCGG	6480
TTGCTTTTTC	ACTTACTTTT	TTGAGTTATA	TTCAATGAAA	ATCAAAGAGC	AAACTAGGAA	6540
GCTAGCTGCA	GGTTGCTCAA	AGCACAGCTT	TGAGGTTGCA	GATAAACTG	ACGTGGTTTG	6600
AAGAGATTTT	CGAAGAGTAT	TAAAAGTATT	CTTCTGAAAT	CCCACATAGC	TTTCTCTTAT	6660

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ATTTTGTGAT AAAATAGGCT CAATCTATTT CTAGGAGGAT GAGATATGGT TTCTACTATT	6720
GGTATTGTTA GTTTATCTAG TGGCATTATC GGAGAGGATT TTGTCAAACA CGAAGTGGAC	6780
TTGGGTATCC AACGTCTCAA GGATCTGGGA CTCAATCCCA TCTTTTT	6827

(2) INFORMATION FOR SEQ ID NO: 61:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 11864 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 61:

CTGGCTAGTT GCATAGAGCA AAGTTGCTTC TTCATCAACA AAACCGTTCA TTTCAAATA	60
GGAAAGCAGC TCATCAGGAC TCTCCAAACG AATCCCTTG TAATCCAGCT CAACTGCCAC	120
CTCTTTCAAG GCTGCAAGAA GAAGTGTTC CAGGCCCTGT CTCTGATGGT CAAACTCGAT	180
GACTAAAGAA TGTACTTTTA GACATTGCGG ATTGTCTGAC TGGGGACTTG ATAAATATA	240
GCCTAAAAGT TGATTTTCAT CCCTAGCTAG AAGAAAGGTA TCCGCACACT TACGGATACT	300
TTCTTCTAAA ATATGGGAAA GTTGCTGCTT TTCAGCTGGA AAAGACGAGG TCTGAAGTGC	360
CCCTATCTCA GGCAATCAG ACTTGCTTGC CTGAATGATC TTAATTGGAA TTTCCATGGG	420
AACATCCTAT TGAACATTGC TTGTCAAGTT AGACAAGAGA CGCTCAAATG AGTATTCATA	480
GGTTTGGATG TCTCCTGCTC CCATAAGAC GTAAACAGCA TTGTCATGGT CTAGGAGTGG	540
AGAAACATTT TCAACAGTAA TCACTTGGTG TTTTGTGTTG ATTTGTGTTG CTAGGTCTTC	600
TACCTTAACG TCACCATGAT CTACTTCACG AGCCGAGCCA TAAATTTGCG CTAGATAAAC	660
AGCATCTGCT TGGTTTAAAG CATCGGCAAA GTCCTCCAAC AAGGCAATGG TTCTTGTA	720
GGTATGCGGT TGAAAGACTG CTACAATTTC CTGCTTGGG TATTCTGAC GAGCCGCATC	780
CAAGGTCGCA ATAATTTCTG TTGGATGGTG GGCAAGTCA TCGATAATCA CTGTATCATT	840
GACAATTTTC TCAGTGAAAC GACGTTTAAC ACCCGCAAAT GTTTTCAAGT GCTCACGCAC	900
CAAGTTCAAA TCAAATCCTG CTGTGTAAAG AAGACCAATA ACGGCTGTCG CATTATGAT	960
ATTGTGACGA CCAAGGTTG GAATGTGGAA TTGCCCAAG TTTTGTCCAC GGAAATGAAC	1020
GGTGAAGGTT GAACCAGTTA TTGAACGAAG AAGATCACTA GCTACAAAGT CATTGCCTTC	1080
AGCTTCAAAA CCATAATAAT AAATTGGTGC ATCAGACGTA ATCTTACGCA ATTCAGCATC	1140
TTCAACCATAG AAAAAAGAC CCTTGGTGAT TTGTTGGCA TAGTCGTAA AGGCATTAAA	1200
AACATCCTCG AGACTTGTGA AATAATCTGG ATGGTCAAAG TCAATGTTGG TGATAATAGA	1260

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GTATTCTGGG TGGTAAGGCA TGAAGTGACG CTCATATTCG TCAGATTCAA AGACAAAATA	1320
TTTGGCATTG GCCGAACCAC GACCTGTCCC ATCTCCAATC AAGAAGCTGG TATCTGTAAT	1380
GTGAGACAAG ACATGAGACA ACATACCTGT CGTTGAAGTT TTTCCATGTG CTCCTGCTAC	1440
TCCCATGCTA ACAAAGTCAC GCATAAAGCT ACCTAGAAAC TCATGGTAAC GTTTGTAGCT	1500
GATACCATTT TGGTCCGCAT AGGCAATTC GACGTTGTTA TCTGGACGAA AGGCATTTCC	1560
AGCGATAATT TCCATATCAC CGTCTAGATT TTTTTCATCA AAAGGAAGAA TGGTAATTCC	1620
TGCCTGCTCA AGACCGCGTT GGGTAAAGTA GTACTTTTCA ACATCTGATC CCTGAACCTT	1680
GTGCCCCATC TGGTGCAACA TCAAGGCCAA GGCATCATC CCTGATCCCT TAATTCCGAT	1740
AAAATGATAT GTCTTTGACA TGTTTCTCC CCTATTCTGT CATTCTGGTC AGATTCAAAT	1800
CTTGGGCAAC CCGACGTTCT TGTTCTGTTT GTTTACTTTT TTTATTGTAG ATTTGGCTCT	1860
TCTTTAGAAA ATCATAATTG TTTTCTTTG GAGCAGGTGC TGACACTTCT TCATTCTTGG	1920
TAGGGATAGA ATGAACTTCT TCCGCCAAGA TATAATGAGA CTGGGTCAAT TTTTGGCTAT	1980
ATTTGACAAA TTCACCAGGA TTTTCTTTT GGAAAGGAGC TGTCGGTTGA TTGCCCTGTC	2040
TAAGTAGACT GGGCTGAGAA TGACGTCTCG CAAGGCTGAA ATCCTGAGTT AGGTAGTTAG	2100
CAGAGCGTTT CTTTTC AAG TCCGCACGCG CTTCTTCACG CGCCACCTCC GCATAGCTCT	2160
TTCTTCTTT TTTAACCCT AAAGGAGCCT TTTTAGGTTT TTCGACTTGC TTTCAATCG	2220
GTTTTACTGG TTTTCTTCA GCAATAGGAG CCCATTCTAA ATAATTTTTA TCTCGATACT	2280
CACCCTTGAT ATTACTGATC AGATCAGACT CATCATAGAG ATTCATGACT GGCATTTACG	2340
TCAACATGAC CTCGTCATCT GACACCAATG GAAATCGTTC TTGTTTCATT TTCTATTCC	2400
TTTCAACACT TCATTATAGC GTATTGTCTT GATTTTTC AA GTGCTGGCTT CAGAAATTC	2460
CAAAATTTCT CTAATTTCTG CTAGGGTCAG ACTACCACGT GACTCTGTGC CGTCCAATAC	2520
TTGTGACACC AGATGTTTCT TTTGTTCTTG GAGTTCCTGA ATTTTCTT CAATGGTTCC	2580
CTTGGTCACC AAGCGATAGA CCTCAACCGT TTCTTCCTGA CCCATCCGAT GGGCACGGCC	2640
AATGGCTTGC GCTTCCACCG CAGGATTCCA CCAAAGGTCA ACCAAGATCA CTGTATCTGC	2700
ACCTGTCAGG TTCAGACCGA CCCCACCAGC CTTGAGGGAA ATCAGAAAGG CATCTCTTC	2760
TCCTTGTTA AAGGCCTTGG TCATGTCTTG TCTTTCCTTG GCTGGGGTTG AACCCGTAAT	2820
TTTAAAGGAA GTCAGGCCCA AGTCTGGCAG TTCTTGTTCA ATTTTTC CAATTCCCTT	2880
GAACTGAGAG AAAATCAAGA CACGGTGTCC GCCGTCTGCC ACCTGTACCA GTAGGTCTCG	2940
GAGACTATCT AGTTGCCCCG TGGCTCCCTG ATAATCTTCC ATAAACAGGG CAGGAGTGTC	3000

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ACATATTTGA CGCAAGCGCA TCAAACCAGA TAAAATTTCC ACACGACTTC GCTGAAATTC	3060
CTGTTCTGAC ACTTGAGCCA GATGGTCTCG CATCTGTTGT AACTGGGCAA GGTAAATAGC	3120
CTTTTGCTGG TCTTCCAGTT CATTTTTATA AACCACCTCA ATCAAGTCTG GCAATTCAGT	3180
CAGAACTTCT TCTTTCTTGC GTCGCATCAC GAAAGGCTTG ATAAACTGAG CCACTCGCTC	3240
TGCTGGCAAT TTCATAAAAT CTTTCTTGCT TGGCAAAAGT CCAGGCATGA CGATTTGGAA	3300
AATAGACCAC AACTCACCCA GATGGTTTTT AATCGGAGTT CCTGACAAGG CAAAGACCGA	3360
CGGCACCACA AATTGTCTCA AGGTCTGGGC AATCTTGGTC TGGGCATTTT TCATGACCTG	3420
AGCCTCATCT AAGAAAAGGA AGTCAAAGGC CATCCCTTGA TAAAACTCAC TGTCTGACG	3480
GAAGGTGGCA TAGCTAGTCA CATAGATTTG ATGGCTCTCG GCAAGAATCT CCTCAGGACT	3540
TGCTTTCAAA CCATGAACAA CAGTCACATC CAACTGTGGA GCAAAATTCT GAAACTCATC	3600
TGCCCAGTTG TAAATCAAAC CCGACGGAGC GAGAATCAAA ACCCGACTTT CTTTTGTCAC	3660
TTGACTAGTC AAAAAAGCAA TGGTCTGAAG GGTTTTCCCA AGTCCCATAT CATCAGCCAA	3720
AATCCCAACCA AAACCATAAT GATGGAGCAT CTGCAACCAG CCAATTCCCT TTTCCTGATA	3780
ATCTCGCAAG TCAGCCTTGA CCTGAGTTGC TTGCAAAGGA AAGTCCTCTG GATGCGTCAA	3840
ATCCTGGGCC AGATTCTGGA ATTCTTGTGA AAAAGAAACA CGGTCTCGCC CTTCAAAGAG	3900
ATGAGCTAAA CTGTAGGCCA AGGATTTCGG AGCCTGCAAG GTCCCATCTT TTAATTCAAA	3960
TTGCCCCAGT TCCTGTAGAT TTTGGCGAAT TTTCTTGGTT TCTTCATCGA AAAAGTAAAC	4020
TTGATTAGAC GAATCAATAT AAAAAATCTG ATTGGCAACC AAGGCCTGCA TGGCTTGGTC	4080
GATTTCTCTC TGGACAATAT TTTGAAAATC AACTGGATT TCCAAGAGAC CTCCTTGGGA	4140
GGCAATCTGC ACCTGAGGAC TCGTAGGCT ATAAAGCTCT TCTAGTTTAT CTGATAGGTC	4200
AACATGCCCG AGTTTTTCAA AGACTGGAAT GATATCATGA AAAAAATGAT AGACAGACTC	4260
CGCTTTTAAG GCCTGACGCC AAGATTGAAA ATCGGCCTCA AAGCCCGCAG CCAAACAGAC	4320
TTGGAAAATT CTTTCTTCTA AGTCTGCGTC ACTTGAAAAG GGTAATTCTT CTAGTCTTG	4380
TCGGCTAGAT ACCTGTCTAT TTCCATAATC AACTGAATT TCTAAACGAA TCCGATTATC	4440
TTCTTCCCTG TCAAAGTAAA AAGAGGGCGC AAAAGTTTGT ATTTGTAGAC GTTCTGGAGC	4500
TGAAACGGTG CCCATCTGGA TAAAAAGAGT CAGACAGGAG GCCAATTGTG CTCGATCACT	4560
GCTATCAAAT TGCAGGTATT TCTTTCCTTG TTGACCCACA GGTAACGCTT TAATTTCCTT	4620
GAGAAGACGC ATCTGCTGGT CTGTTAAAAA ATAAACCTGA CCTTTATGGA AAAGTACTGC	4680
TCCCTGATAA AAGACATTGA CCCTAGGACT CTCACTGATT TCCATTTCAA AATAATCCGA	4740
GTATTCTGTT ACTGTAAAGG CAAATAGATT GGCATCAGCA TGCATATCCT GAAAAAGCAG	4800

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GGTTTGGTAG CTATCCACTT GATGGTCAAA TTGAAAATGG GGCAAGGCCA TCAGTAAATT	4860
CACACCCTGC TCAAAAAAGG TCAGAGGGAA AAAGAGGTGC CGACCTTGGT TTTGGAAAAA	4920
GAGGTCTGGA ACCAGCCCTT CCTCCGTTAG TCCGTGCAAG AAAGTCAAAA GTTCTTGGCT	4980
GGCATCATCA AAGGCTTCCC AAGAAAGAGA CTCCTCATAA ATCTTGCCAA TCATATACGA	5040
CTTCTCTGCG TCGACAATCC TTAaaaaaag TGGAATATCC CGAATGACAT AGTATTTTGT	5100
GCTATTGATT TGGCCGATTC TCAGAGTCCA CAAGATATGA TTGGTTCCTG CTTCCACCTG	5160
ACCCACAGCT GATAACTCAT AGGCGCATTC TGATTTTGGG GATAAAATTC GATCCAAAAA	5220
CTTGCCACCC AAGGTCACCT TGGTTTCAAC AGCCTCTTTT TCTTCATGAC CTTCTTCCAG	5280
ACTCCACAAG ATTTCTGAC CACGCTCATC ATTTTTCAGA AAATGCTCTA GCGCTGCCAA	5340
ATGCACACAG TAGCCCTCTT TTTGAAAAAA ATCAGAGGCA CAAAAACCA AATCATCCTC	5400
TAAACTATAG CGCAGTTCTT CTTCTGCAAC GCGAGCGTAG AGCCGATTGT TCTTTTCCTT	5460
GATGATATCA ACCTTACCAG TTTCATAAAG GGCAACACCT TCGATACGAA TTTTCCCCGG	5520
AATCAATTTA GCCATATTTT CACCTTTACC TTATCTTTTT ATTATACCAT ATTTTCGCCT	5580
ATGAAAATAG CCTTCTAGGA AGACTTTTCT CCTAGAAGGC TGGATTTTGA ACGTTTGGCA	5640
AAAGTAGCCA CAATCCGCTG ACAGACTTCT TGCAACAGAG ATTTGGGCAT AGCTATATTG	5700
ATGCGGGCAT GGAGACTTCC TTCCTCTCCA AAATCCAAAC CACGGTTGAG GATAACCTTG	5760
GCTTCATTTT TCAACAACTC TTGCAATGTT TCATCAGTCA GGTGATAAGC TGAAAAGTCA	5820
AGCCAAATCA AGTAGGTACC TTGCGGTTTC ATGACCTTGA TTTTACTCTC TTTTCCAAAT	5880
AGATCCATCA CATAATTGAT GTGGTCTTCA AAGACTTGCT TGAGTTCCTC TAGCCAATCT	5940
TTACCGTATC GATAGGCAGC TTCTGTGCGC AAATAACCCA AGCCTGAAAT TTTCTGCTGA	6000
TTATTGGCCA ACAGGCGTTT CTGGAAAGCC AGTCTCAACT TAGGATTTTC AATGACTGCA	6060
TAGGAATTTT TTGTTCCAGC AATATTAAAT GTTTTAGTGG CACTGCTCAA GACGATAGCA	6120
AAATTTTGA AGGCAGGATT GATGGTATTG AAAGACTGGT GTTTGTGACC AAAGAGGCTC	6180
AAATCTTGGT GAATCTCATC CGAAACTAAC AAAACACCGT CTTTTTGCCA GAGTTGGCCA	6240
ATCTTCTCCA ACACTTCTTT TTCCCAAACA CGTCCACCAG GATTGTGAGG GTTGCAAAGA	6300
ACATAGAGTT TAACCTCCTC TTCCACCAAA TCCTTTTCAA GTTGGTCAAA GTCAATCTCA	6360
AACAGACTAT CCTTTTCCAC TAAGGAATTA GTAATCAATC TACGATTATT CAACTTGACA	6420
CTGCGAGCAA AGGGTGGGTA GACAGGCGTG TTAATTAAAA CCGCCTCGCC TTCTTTTGTA	6480
AAGGTTTGAA TAGCTGTTGA GATGGCTGGT ACCACACCCT CGATAAAGAC AAGAGCCTCT	6540

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TTGTCAAAGT TGTAAACGTA TTGTGTAGCT TCCCACCTTTT GAACTTCCTT AATTAAAGTCT	6600
TCACTGGCAT AGGTATAACC ATAAACCAGT TGGTCTGCGT AAGTTTGCAC GGCTTGGCGG	6660
ATTTTCAGGCA AGACCACAAA GTCCATATCC GCTATCCAAG CTGGTAGAAC TTCACTATCC	6720
GTTTCTGTTT CTTTCCATTT ATAGGTATGG TGCCCTAAAC GGTTGGGCAG GCTTGTAATA	6780
TCATATTTTC CCATCTTTGT CTTATCCTTC TATGGCTTGG CGCAAATCTG CAATCAAATC	6840
TCTAGCATCC TCAATCCCAA TAGACAAACG CAAGAGGTCA TCTGTCAAAC CATAAGAATG	6900
GCGTACCTCT GCTGGAATAT CAGCATGAGT TTGAGTCGTT GGATAAGTAA TAAGACTTTT	6960
CACCTCCACCC AAACCTTTCCG CAAAAGAGAA GACCTTGAGA CTGTTCAAAA TATGAGGAAT	7020
GCGTGTTTCA TCGGCTACTT TAAAGGAAAT CATGCCTCCA CGACCAGTGT AGAGAACTTC	7080
CTTAACTGCT GGAGAATCCT TCAAAAAGGC AACCACCTCT TGGGCGTTAG CTGTTGAGCG	7140
CTCCATACGA AGAGACAAGG TCTTGAGACC ACGAAGCAAC TGGTAGCTGT CAAATGGAGA	7200
CAAGACTGCC CCTGTTGTAT TAAGATTGTA AAAAAGCTTC TCGTATAGTT CTAAACTATT	7260
GGTCACAACC ACTCCAGCCA AGACATCATT GTGGCCTGCT AGATACTTGG TTGCTGAATG	7320
GACAACGATA TCTGCTCCAT CTTCAATCGG ACOTTTGGTAG ATAGGGCTAT AGAAGGTATT	7380
GTCCACCACC ACTTTGGCAC CCTTAGCATG AGCCAATTTT GCTAGTTTTT CGATATCAAA	7440
TTCCAACATC AAGGGATTGG TTGGGGTTTC GATATAGAGA ACATCCACAT CTTTTTCTAA	7500
CTCGGCAATC AACTCTTCTT CTGTATTGGC ATAGGTAAAA TGGAAATGAC CTTCTGCTC	7560
CACCTGGTTA AACCAGCGAA AAGAACCACC GTAAAGATCA CGCACTGCCA AGACCTTACT	7620
TCCTACTGGA AAGACGCTAA AGGCCAGTAC AATAGCTGAC ATCCCTGAGC TAGTCOCTAG	7680
GGCATAGCTT GCTGACTCAA TAGCCGCCAA GACTTCCTCA GCCTTACTAC GAGTTGGATT	7740
TTTAGTGCGC GTATAGTCAA ACCCAGTAGA TCGACCAAC TCTGGATGCT CATAGGTGCT	7800
TGAAAAATGA AGTGGTGTCA CCAAAGCACC TGTTCCTCA TCAGACTTGA TCCCTGCTTG	7860
TGCTAAAATT GTGTTAATGT GTAATTCCTT GCTCATACAA TTCTTCCAAA TCTATAGTAA	7920
CTATTGTACC ACTTATTTTG TATCCTTCGT TTTCTTGTTC TCAAGAGCTA GTTATAGTTT	7980
CAAACTATAT AAAAAGGGAG TTTTTCCTGC TCCCTTTAAT AGACTATAAA ATGGTGAATC	8040
TCAAAAGACA CCTTCACTCT ATCATTTGCT CCTGCACAAA ACGAGCATAA CGCTCATGAT	8100
TTTCCAGTAG TTCCTTATGA GTTCCTGAGC CAGTGATTTT CCCCTCCTCT AAGAAGAAAA	8160
TACAATCCAC ATCTTTTACC GTTGACAAAC GATGCGCTAT AATCACAACC GTCTTCTCCT	8220
TTAGTACAGA ATAGAGGCTA CTGATAATCG CATACTCAGA ATCCGCATCA AGATTAGCAG	8280
TGGCTTCATC AAATATAAGA ATTTCAAGAT CTTTAAGTA GGCTCTAGCT ATTTGAAGTC	8340

TTTCGTTCGC CCCCTGACA AGAGTCGTCC GCGTTCACCA ACTTCAGTAT CTAGTCCCTC 8400  
TTTCATGGAG CGAATCTCAT CACCTAGTGA TACTAAGTCT AGCACTTTCA TCAATTCATC 8460  
ATCAGTTACT AAGCGATTCA AACCGAGACA AAGATTGTCA CGAATACTGC CAGATAAGAC 8520  
TGCATTATTT TGTGAAACCC AAGCGATTTT ACTTCTCCAT TCTTTTAAGT TAAAATCATA 8580  
TATACTTGAT TGCTCCATTA GAATATCTCC TGAAAGCGGT TTATAAAACC GCTCTAACAA 8640  
ACGCACAATC GTTGATTTTC CTGATCCAGA TGGTCCAACA AAAGCAATTT TTTGCCCTT 8700  
GAAAATTGAA CAAGTAATAT CCTTTAAGAC AGGTGCGATT TCATCATAAC CAAAATAGAC 8760  
ATGGTTAAAA TTCAACCTTC GTCCTGATAC CGATTTTCCT CCCTCAAATT TTTCTTTAGG 8820  
AACTGCAAGC AAGTTCTCCA GTGCAACTGA AGATCCCTTG CTCCTAGAAT AAACAGTTAC 8880  
AAAATTAGCT ATATTACTAA TAGGATTAAG TAATTGAAAG AGGTAAATCA AAAACGAAAC 8940  
CAAGGTTCCC ACAGATATAT ATCCTGCGCT GACCCGATAA CCCCATAGG TTAGCATCAC 9000  
AGCTATAGTC GCAAAGATAA ATAAGAGAGC AAACGGGGTC TCAAAAGAAG TAACCTATC 9060  
TGATTTCACT GAATTGTTTT GTACCTTTT AATACAATTA TCCAAAACAT CCTGTACACT 9120  
TTTCTCTGCT TGGTTAGTCT TAATTAATTC ATGTTCTTGA ATCTTTTCAG TCAATTGCCC 9180  
TGTTAAATTT CCTCCTGTAA ACGACGACTA TACTTTTCAC TGATATTGGA AAGGGGCAAG 9240  
ATAATAAACA TCATACAAGG AAGAGTGATG AATAAAAGTA GAGAAAGATT CCAATCAAGA 9300  
CTAAATAAGA CTACAATGGA ACCAAGTACC ATAATAAAC TCAGAATAAT ATTTGGGAAA 9360  
GTCGTAATTA AAAACTCAGC AATGACACTC GTGTCATTGA CAATGGCAGA AGTCAACTCC 9420  
CCACTTTGGC TCTTATCAAA GAAGGATTTT TCTACATAAA TCAACCCCTC TATCACTTTT 9480  
TTCCTGATTT TTGCTATCTT TTTTTCACCC GATTGACTAA ACAGATAGTA ACCAATAGAA 9540  
GAAAACAAGG CTTGACCAAT AAAAATCAAA AACGATTGAA ATACTTTGGA GCCTATATTT 9600  
TCAATAGAAC TCCCATCTAT TAAATCCTTT AAGATAAGGG GAAGCAACAA AGCAAGTAGA 9660  
CTAGACAGAA CAAGTAAGAA ACTCCCCATA ATCACCCTAG TATCTACTCT TAATAATTTT 9720  
AATTTCATAA ATACTCCTTA TAATATTTCA ACGGATAAAG TCGGGAATAA CTCAATTTGA 9780  
GGATAAAATC TAATAAATCT TCCTATAACA AAACGCATAA CATCTAGGAT TTTATATACC 9840  
TGATATTATG CGTTTTTAAG CACAAAGACT TCTTACACAA ACTTATCTAC AATTAGATTT 9900  
TATTTGACAT GTTTTGCCAA TTCTTCTTGG GCTTTTTTAT TGGATTCTTC TTTTCTTTC 9960  
AACCATTTT CTCTGGCTTT TGCATATTCG TCTGTTGTGA CAATCTTATC TTGTACTTTG 10020  
AGGTATTTAT ATGATTCAAC CCCTTTTGTA CCGGTTAAAC CATAGGCAGC AGCAAATGGT 10080

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ACGGTTCTTC TCAATGATGG TGTTCCECCA CGCGAAACAC TTGGAAGAAC TAAAGAACTA	10140
TCAATCAACC AAGCTTGAAT ATCAGCATAT TTCTCATAAC GTTTGGCCCG ATCTTGCTCT	10200
TTATTAGCTT CTTCCAACAT TTGAGTATAG ACATCCAGTC CAACTGCCTT AGCCTTGTC	10260
TTGGCCTCAC CAGGCTCTAG TCCAAGATTT TGCAGAAATC CTCCACTATT AGTATTAAAA	10320
ATATCGAGAT AGGTTGACGG GTCTTGATAA TCAGGTCCCC AACCGCCATG ATATAAATCA	10380
TAATCTTTCT GAGCAGCTGT TTGAGCAAAG TAGCCTGAAC TGTCAAATC ATCTGATGTT	10440
AATTGCTGAA TGTCAATCAC TACATTATCA GAACCTAAAA CAGATTCAAT TGATTGTTTG	10500
ATAGAACTAA CTCCTTGAT GCCTACTTTA TCTGTACTT CCACAGCTTT ATCCAAGTGG	10560
ATTGGGAATT GAACACCCTT TGCTTCGAGT TCTTTCTTAG CTTCGCAAA CTAGCCTTG	10620
GCTTTCTCAG GATTGTAGTA AGGGTCTTGA CCATCCGCAA AGTTGATACC TTGCCATTCC	10680
TTACCATAGT TGACCATCTT AGAGGCTACA ACTTCACCAA AGTCTTTTCC CTGATACTG	10740
ACAAAGTTTG GAGGAACCAC TAGGTTACGC AAAATCTTTG TTGCACCTT TTTCCCTTCA	10800
GACTGAGCCC CATAAGATGT TCTGTCAAAA GCAAAATTGA TAGCCTGACG GAAGTTTTTA	10860
TTGAGAACTG CTTCTGAGT CGATTTCTTT TCAATGTCAC TTGTTTGA AGTATAATTG	10920
TAAGACTTCC TATCTAGGTT AAAATTAAAG AAATATGAAG TTGAATTTTG CATACTATAG	10980
ATGATATTGT TTTTGTATTT TTCTTTAATC CCTTCATAGC TGGAGCTGTT AGGAAAAAGA	11040
CGAGCCGTAG TATAAGCACC AGCTGTAAAA TTACGTTCCA GTGATTCTTG GTCGCTACCA	11100
TCATAGTAGG TCAATTTTAC ATCGTCTACA AAGACATTCT TAGCATCCCA GTAATTAGGG	11160
TTTTTCTTAT ATTCAATAGC AGATTTTGAG ACAAGTGCTT TCATCAAGAA AGGTCCATTG	11220
TACAAAATAC TAGATGGATC CGCCTTCCCA AAATCATCCC CTTTGTGATT CAGGAAATCT	11280
GCATTAAACAG GAAAAAGTAT CGTTGCAAGT GTTTTGAAT TCCAGTAAAG TTCTGGTTTA	11340
ACCAAAGTAT ATTGAACCGT TTGGTCATCA AGTGCCTTGA CACCGACAGT TGAAAAGTCS	11400
CTTGTTTTAC CAGTGATATA GTCATCCAAA CCAGCAACAG AGTCCTGCAC TAGATACAAG	11460
GCTTCTGATT TTTTATCAGC TGCATATTGC AAACCTGTCA CAAAATCCTG GGCAGTTACA	11520
GGCGCATATT CTTCTCCCTC AGAAGTAAAC CACTTGGCAT CCTTACGAAG TTTGTAGGTA	11580
TAGGTCAAAC CGTCTGAGA AACAGTCCAA TCCTCTGCTA ATGATGGAAT AATATTCCCA	11640
TATTGGTCAT TTTCTAATAA CCCGTCTACC AAATTTGCAA CAATATCGGA TGTGCTGCG	11700
CGGTTTTCTG CTAGATAGTT CAAGCTAGAT GGATCACTTG AATAAACATA GTTGATAGTT	11760
TTTGACGCCG TGCTAGAATT TCCACACGCG CTCAATAAAA CTCCTGTACC CAGGACAAGA	11820
CCTGCCAAGG TTAGATATTT GCTCTTAGAC TTTTTCATTT CCGG	11864



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## (2) INFORMATION FOR SEQ ID NO: 62:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2412 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 62:

TAAGTGCCTT AACATAATA TAAGGAGAGA AAATGTCTGC AATAGAACGT ATTACAAAAG	60
CTGCTCACTT AATTGATATG AACGATATTA TCCGTGAAGG GAATCCTACT CTACGCGCGA	120
TTGCTGAGGA AGTCACTTTC CCCCTATCTG ACCAGGAAAT CATCCTAGGC GAAAAGATGA	180
TGCAATTCCCT TAAACATTCC CAAGATCCTG TCATGGCTGA AAAAATGGGA CTCCGCGGTG	240
GTGTTGGACT GGCTGCTCCC CAGTTAGATA TCTCAAAACG CATTATCGCT GTTTTGGTAC	300
CTAATATTGT TGAAGAAGGC GAAACTCCAC AGGAAGCCTA CGATTTCGAA GCCATTATGT	360
ACAATCCAAA AATCGTCTCT CACTCTGTTC AAGATGCTGC TCTTGGCGAA GGAGAAGGTT	420
GCCTGTCTGT TGACCGTAAC GTGCCCTGGCT ATGTTGTTCC CCATGCCCCG GTTACTGTTG	480
ACTACTTTGA CAAAGATGGA GAAAAACACC GTATCAAAC CAAAGGCTAC AACTCCATTG	540
TTGTTTCAAG TGAAATTGAC CACATTAACG GTATCATGTT TTACGATCGC ATCAATGAAA	600
AAGACCCATT TGCAGTTAAA GATGGTTTAC TGATTCTTGA ATAAAGAAAA TCCCGTTGCA	660
AGACGGGGTT TTGTGTTATA ATAGAGGCAT GAAAAACAAAT GATATTGTCT ATGGTGTCCA	720
CGCCGTTACC GAAGCCCTCC TTGCAAATAC AGGAAACAAA CTCTACCTCC AAGAAGATCT	780
CCGAGGTAAG AATGTTGAGA AAGTCAAGGA ACTAGCTACA GAAAAGAAGG TGTCCATTTC	840
TTGGACATCA AAAAAATCTC TCTCTGAGAT TACTGAAGGT GCTGTTTCATC AAGGTTTTGT	900
TCTACGAGTG TCTGAATTTG CCTATAGCGA GCTAGATTAC ATCCTTGCAA AAACACGCCA	960
AGAAGAAAAT CCACTTCTAT TGATTCTAGA TGGTCTAACC GATCCCCATA ATCTGGGTTT	1020
TATCTTGCGA ACAGCCGATG CGACCAATGT TTCAGGTGTC ATCATTCCCA AGCACCCTAC	1080
TGTCGGAGTA ACTCCTGTCG TTGCCAAAAC AGCCACAGGT GCTATTGAAC ACGTCCCAAT	1140
TGCCCCGAGT ACCAACCTCA GTCAAACCTT AGGATAAACT TAAGGATGAA GGTTCCTGGA	1200
CCTTTGGAAC GGATATGAAC GGTACTCCTT GCCACAAGTG GAATACAAAA GGGAAAATCG	1260
CCCTCATCAT TGGAATGAA GAAAAGGTA TCTCTAGCAA CATCAAAAAA CAGGTCGATG	1320
AAATGATTAC CATTCCGATG AATGGACATG TTCAAAGCCT TAATGCCAGT GTTGCTGCGG	1380

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CCATTCTCAT GTACGAAGTT TTCCGAAATA GACTATAAAA AAGTTTCCAG TCATCTGATT	1440
GGAAACTTTT TTATGATTAA CTATGTTCTG TAATGAATTT ATAGGCTTCT TGACCAGCGA	1500
TAGCTCCATC TCCAACCGCT GTTGTTACTT GCGAAGGTC TTTCAAGCGA ACATCTCCAA	1560
CTGCAAAGAT ACCGTCGACT GCAGTTTCA TGTGGTTATC TGTCACAATC CATCCTGCCT	1620
GATCTTGGAT ATTCAATTCT TTAACAAAAT CGCTAAGAGG GTCCAAACCA ACATAGATAA	1680
AGACACCACC GAAGGCTTGT TCTGTCACTT GACCTGTTTT CACATTTTCA AATACGACTG	1740
ATTCTACTCG GTTTTCACCC TTGATTTCCC TTAACACAGA ATCCCAGATA AAGCTGATTT	1800
TTTCATTTCG AAAGGCGCGA TCTTGTAATA CCTTTTGGGC ACGAAGTTGG TCACGACGGT	1860
GAACAATGGT AACAGTCTTA GCAAAACGAG TCAAGAAGAG GGCTTCTTCA ACAGCTGAAT	1920
CTCCACCACC AACTACCAAT AAATCTTGGT CACGGAAGAA AGCACCATCA CACACAGCAC	1980
AGTAAGAAAC ACCACGACTG TTCAGTTCTT CTTCTCCAGG CACTCCCAA GGACGGTGT	2040
TAGAACCAGT TGCTACGATA ACTGTACGTG TTTCATATGT TTGGTCATCA GTCATCACTT	2100
TCTTAAATC ACCATGGCTT CGACATTTT AACATAACCA TAAATGTGCT CAACACCAAG	2160
ATTTTCAAGT GGTTCAAACA TCTTTTCAGC CAATTCAGGT CCACTAATAT TAGCGTATCC	2220
TGGGTAATTT TCGATATCAG ATGTATTATT CATCTGACCA CCTGGCAGAC CACCTTCAAT	2280
CAAAGCTACT TTTAGATTGC TTGAGCAGC ATACAAGGCC GCAGTCATCC CTGCAGGTCC	2340
AGCACCGATA ATAATAGTAT CGTACATATA GATTCCTTCT TTCTTGGTGT AACTATCTTT	2400
ATTCTAACTC TG	2412

(2) INFORMATION FOR SEQ ID NO: 63:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 7760 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 63:

CCGATTTGGT GGAATTTTTG TCTCATCATT TAGAAGGTGT TGCAAGAGCA GAGTTTACCT	60
TGGTGCTTCA TACCAAATTG GGAGAAGCCT CTGTTTGGC AAATATTGTA GATGTAAACA	120
AGGATGAATG GATTTTAGGA ACAGTTGCTG TGCCAATAC CTTATTGGTT ATTTGTCGAG	180
ATCAGCACGT TGCCAACTC ATGGAAGATC GTTGCTAGA TTTGATGAAA GATAAGTAAG	240
GTCTTGGGAG TTGCTCTCAA GACTTATTTT TGAAGAGGAG AGACAGAAAA TGGCGATAGA	300
AAAGTTATCA CCCGGCATGC AACAGTATGT GGATATTAAA AAGCAATATC CAGATGCTTT	360

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TTTGCTCTTT CGGATGGGTG ATTTTATGA ATTATTTTAT GAGGATGCCG TCAATGCTGC	420
GCAGATTCTG GAAATTTCCT TAACGAGTCG CAACAAGAAT GCCGACAATC CGATCCCTAT	480
GGCGGGTGTT CCCTATCATT CTGCCCCACA GTATATCGAT GTCTTGATTG AGCAGGGTTA	540
TAAGGTGGCT ATCGCAGAGC AGATGGAAGA TCCTAAACAA <u>GCAGTTGGGG</u> TTGTTAAACG	600
AGAGGTGTGT CAGGTCATTA CGCCAGGGAC AGTGGTCGAT AGCAGTAAGC CGGACAGTCA	660
GAATAATTTT TTGGTTTCCA TAGACCGCGA AGGCAATCAA TTTGGCCTAG CTTATATGGA	720
TTTGGTGACG GGTGACTTTT ATGTGACAGG TCTTTTGGAT TTCACGCTGG TTTGTGGGGA	780
AATCCGTAAC CTCAAGGCTC GAGAAGTGGT GTTGGGTTAT GACTTGTCTG AGGAAGAAGA	840
ACAAATCCTC AGCCGCCAGA TGAATCTGGT ACTCTCTTAT GAAAAAGAAA GCTTTGAAGA	900
CCTTCATTTA TTGGATTTCG GATTGGCAAC GGTGGAGCAA ACGGCATCTA GTAAGCTGCT	960
CCAGTATGTT CATCGGACTC AGATGAGGGA ATTGAACCAC CTCAAACCTG TTATCCGCTA	1020
CGAAATTAAG GATTTCTTGC AGATGGATTA TCCGACCAAG GCTAGTCTGG ATTTGGTTGA	1080
GAATGCTCGC TCAGGTAAGA AACAAGGCAG TCTTTTCTGG CTTTGGGATG AAACCAAAAC	1140
GGCTATGGGG ATGCGTCTCT TCGGTTCTTG GATTCATCGC CCCTTGATTG ATAAGGAACG	1200
AATCGTCCAA CGTCAAGAAG TAGTGCAGGT CTTTCTCGAC CATTTCTTTG AGCGTAGTGA	1260
CTTGACAGAC AGTCTCAAGG GTGTTTATGA CATTGAGCGC TTGGCTAGTC GTGTTTCTTT	1320
TGGCAAAACC AATCCAAAGG ATCTCTTGCA GTTGGCGACT ACCTTGCTA GTGTGCCACC	1380
GATTCGTGCG ATTTTAGAAG GGATGGAGCA ACCTACTCTA GCCTATCTCA TCGCACAAC	1440
GGATGCAATC CCTGAGTTGG AGAGTTGAT TAGCGCAGCG ATTGCTCCTG AAGCTCCTCA	1500
TGTGATTACA GATGGGGGAA TTATCCGGAC TGGATTTGAT GAGACTTTAG ACAAGTATCG	1560
TTGCGTTCTC AGAGAAGGGA CTAGCTGGAT TGCTGAGATT GAGGCTAAGG AGCGAGAAAA	1620
CTCTGGTATC AGCACGCTCA AGATTGACTA CAATAAAAAG GATGGCTACT ATTTTCATGT	1680
GACCAATTCT CAACTAGGAA ATGTGCCAGC TCACCTTTTC CGCAAGGCGA CGCTGAAAAA	1740
CTCAGAACGC TTTGGAACCG AAGAATTAGC CCGTATCGAG GGAGATATGC TTGAGCGCGG	1800
TGAGAAGTCA GCCAACCTCG AATACGAAAT ATTTATGCGC ATTCGTGAAG AGGTCGGCAA	1860
GTACATCCAG CGTTTACAAG CTCTAGCCCA AGGAATTCGG ACGGTTGATG TCTTACAGAG	1920
TCTGGCGGTT GTGGCTGAAA CCCAGCATTT GATTCGACCT GAGTTTGGTG ACGATTACAA	1980
AATTGATATC CGGAAAGGGC GCCATGCTGT CGTTGAAAAG GTTATGGGGG CTCAGACCTA	2040
TATTCCAAAT ACGATTGAGA TGGCAGAAGA TACCAGTATT CAACTGGTTA CAGGGCCAAA	2100

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CATGAGTGGG AAGTCTACCT ATATGCGTCA GTTAGCCATG ACGGCGGTGA TGGCCCAGCT	2150
GGGTTCTCTAT GTTCCTGCTG AAAGCGCCCA TTTACCGATT TTTGATGCGA TTTTACCCTG	2220
TATCGGAGCA GCAGATGACT TGGTTTCGGG TCAGTCAACC TTTATGGTGG AGATGATGGA	2280
GGCCAATAAT GCCATTTTCG ATGCGACCAA GAACTCTCTC ATTCTCTTTG ATGAATTGGG	2340
ACGTGGAAC T GCAACTTATG ACGGGATGGC TCTTGCTCAG TCCATCATCG AATATATCCA	2400
TGAGCACATC GGAGCTAAGA CCTCTTTTGC GACCCACTAC CATGAGTTGA CTAGTCTGGA	2460
GTCTAGTTTA CAACACTTGG TCAATGTCCA CGTGGCAACT TTGGAGCAGG ATGGGCAGGT	2520
CACCTTCCTT CACAAGATTG AACCGGGACC AGCTGATAAA TCTACGGTAT CCATGTTGCC	2580
AAGATTGCTG GCTTGCCAGC AGACCTTTTA GCAAGGGCGG ATAAGATTTT GACTCAGCTA	2640
GAGAATCAAG GAACAGAGAG TCCTCCTCCC ATGAGACAAA CTAGTGCTGT CACTGAACAG	2700
ATTTCACTCT TTGATAGGGC AGAAGAGCAT CCTATCCTAG CAGAATTAGC TAAACTGGAT	2760
GTGTATAATA TGACACCTAT GCAGGTTATG AATGTCTTAG TAGAGTTAAA ACAGAACTA	2820
TAAAACCAAG ACTCACTAGT TAATCTAGCT GTATCAAGGA GACTTCTTTG ACAATTCTCC	2880
ACTTTTTTGC TAGAATAACA TCACACAAAC AGAATGAAAA GGAGCTGACG CATTGTGCTT	2940
CCCTTTTGTC TATTTTTTAA GGAGAAAGTA TGCTGATTCA GAAAATAAAA ACCTACAAGT	3000
GGCAGGCCCT GGCTTCGCTC CTGATGACAG GCTTGATGGT TGCTAGTTCA CTTCTGCAAC	3060
CGCGTTATCT GCAGGAAGTC TTAGGCGCCC TCCTTACTGG GAAATATGAA GCTATTTATA	3120
GTATCGGGGC TTGGTTGATT GGTGTGGCCG TAGTCGGTCT AGTTGCTGGT GGACTCAATG	3180
TTGTCTCGC AGCCTATATT GCCCAAGGAG TTTCATCCGA CCTTCGGGAG GATGCCCTCC	3240
GTAAAATTCA AACCTTTTCT TATGCTGATA TTGAACAATT TAATGCGGGA AATCTAGTCC	3300
TTGGAATGAC AAATGATATC AACCAGATTC AGAACGTTCT CATGATGACC TTCTAAATTC	3360
TTTTCAGACT TCCCCTCTTG TTCATCGGTT CGTTTATCCT AGCGGTTCAA ACCTTACCTT	3420
CTCTGTGGTG GGTGATTGTT CTCATGGTAG TCTTGATTTT TGGTTTGACT GCTGTCATGA	3480
TGGGAATGAT GGGGCCTCGT TTGCCAAGT TTCAAACCTT TCTTGAGCGC ATCAATGCCA	3540
TTGCCAAGGA AAATTTACGT GCGGTTCTGT TGGTCAAGTC CTTTGTCCAA GAAAAAGAGC	3600
AATTTGCTAA GTTTACAGAG GTCTCAGACG AGCTTCTTGG TCAAAACCTT TACATTGGTT	3660
ATGCCTTTTC AGTAGTGGA CCCTTTATGA TGTGTTGGT TACGGGGCG GTCTTCCTCT	3720
CTATTTGGCT GGTGCGGGA ATGGTTCAGT CGGATCCGTC TGTGTTGGT TCCATCGCTT	3780
CTTTTGTTAA TTACCTAAGC CAGATTATCT TTACCATGT TATGGTTGGA TTTTGGGAA	3840
ATTCTGTCAG CCGTGCCATG ATTTCCATGC GTCGTATTCG AGAAATTCCT GACGCAGAGC	3900

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CAGCTATGAC CTTCAAGGAT ATCCCAGATG AAGAGTTGGT TGGAAGTCTT AGCTTTGAAA	3960
ATGTGACCTT TACCTATCCA ATGGACAAGG AACCGATGCT GAAAGATGTG AGCTTTACTA	4020
TTGAACCTGG TCAAATGGTT GGTGTAGTTG GAGCGACTGG TGCAGGAAAG TCAACCTTGG	4080
CTCAATTGAT TCCACGTCTC TTTGATCCAC AGGACGGGGC CATTAAAATC GGTGGCAAGG	4140
ATATTCGAGA AGTGAGTGAA GGAACCCTGC GTAAACAGT TTCCATCGTT CTCCAACGTG	4200
CCATTCTTTT TAGTGGAAAG ATTGCAGATA ACTTGAGACA GGGGAAGGGG AATGCTACTC	4260
TATTTGAAAT GGAGCGCGCA GCCAATATTG CCCAGGCTAG TGAATTCATT CATCGTATGG	4320
AGAAAACCTT TGAAAGTCCA GTTGAAGAAC GGGGAACCAA TTTCTCTGGT GGACAAAAAC	4380
AAAGGATGTC GATTGCGCGT GGGATTGTCA GCAATCCACG TATTCTGATT TTTGATGATT	4440
CGACCTCAGC CTTGGATGCC AAATCAGAGC GCTTGGTGCA AGAAGCTTTG AATAAGGACT	4500
TGAAGGGGAC GACAACCATT ATTATTGCTC AAAAAATTAG CTCGGTTGTC CATGCAGACA	4560
AGATCTTGGT TCTAAATCAA GGACGATTGA TTGGTCAAGG TACGCATGCA GACTTGTTTG	4620
CCAACAATGC CGTTTACCGT GAAATCTATG AACACAGAA ATGAAAGACA AACTATAAGA	4680
AAAGTCAATA GTTTTATCTA AACTATTTCT TATTTCAATT TGATGATTTG GCGATGATTT	4740
TAGAGCACGG CAAAAAGCCC TTGAAAAAGT CCATTTTTTC AAAGGTAATC CTGTGTTAAT	4800
TTCAAGAAAT ACATCACTTT TTGTTGCTCA AATGGCAGCT CTTTTTTTAG GATATAAAAC	4860
AGGGTTCCGA TAAGTTTTTT TGCAAGGTGG ATGATGGCTA CATTGTAATG TTTTCCTTGT	4920
TCTAATTTAG TCTTAAGATA GGCCTTAAAA GCAGGCGAAA AGCGAGGGCA TGCTTTGGCA	4980
GCTTGATGA GTACCTACCG CAGATGAGGG GAACTCCGTT TGACCATTCT TCCTGCTAAA	5040
TCAATCTGAT CTGACTGATA AATAGAAGAA TCCAGTCCAG CGAAAGCTTG TAATTGAGCA	5100
GGATTATCAA AGGCATGAAT ATTTGGAATC TCAGCTAAAA TGACCGCCCC TAAACGATCC	5160
CCAATCCCAG TAACCGTCGT GATGACCGAG TTGAACTCAG CCATCAAGTC ATTGACACAT	5220
GTTCGCCCT TGTCAATGAG CCTCTGTAA TGTGTGATGT TTTCAATTACA CGAGATAAAA	5280
CGTCTATGCG TTATCAAACCT CATTACCAAT TAAACAAAA AGCTGTGGTT AGATCCTTTC	5340
GGAAATTGTC AAGCGATTGG AGGAAATGAA CTAATCCACA GCGGCTTATT CCAAGTATAC	5400
CACTTGGGCT TTGCCAGTAG CTAAGTGGC TAAATATAAT ATAAGGAGGA GTAAATGAA	5460
GACAGTCAA TTTTCTTGGC ATTATTTTAA GGTCTACAAG TTCTCATTTG TACTTGTCAT	5520
CCTGATGATT GTTCTGGCGA CTTTGGCCA AGCCCTCTTT CCAGTCTTTT CTGGACAAGC	5580
GGTGACGCAG CTAGCCAATT TAGTCAAGC TTATCAAAAT GGCAATCCAG AACTTGTATG	5640

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GCAAAGCCTA TCAGGAATCA TGGTCAATCT TGGCCTGCTG GTTTTGGTTC TATTTATCTC	5700
TACTGTAATA TACATGTGTC TCATGACGCG CGTGATTGCA GAATCGACCA ACCGATGCG	5760
CAAAGGCCTC TTTGGTAAGC TTGCTCAGTT GACGGTTTCT TTCTTTGACC GTCGACAAGA	5820
TGGCGATATC CTGTCTCATT TTACCACTGA TTTGGATAAT ATCCTCCAAG CCTTTAACGA	5880
AAGCTTGATT CAGGTCATGA GCAATATTGT TTTATACATT GGTCTGATTC TTGTCATGTT	5940
TTGAGAGAAAT GTGACGCTGG CTCTCATCAC CATTGCCAGC ACCCCATTGG CTTTCCTTAT	6000
GCTGATTTTC ATCGTGAAAA TGGCACGCAA ATACACCAAC CTCCAGCAGA AAGAGGTAGG	6060
GAAGCTCAAC GCCTATATGG ATGAGAGCAT CTCAGGCCAA AAAGCCGTGA TTGTGCAAGG	6120
AATTCAAGAG GATATGATGG CAGGATTTCT TGAACAAAAT GAGCGCGTGC GCAAGGCAAC	6180
CTTTAAAGGA AGAATGTTCT CAGGAATTCT TTTCCCTGTC ATGAATGGGA TGAGCCTGAT	6240
TAATACAGCC ATCGTCATCT TTGCTGGTTC GGCTGTACTT TTGAATGATA AGTCTATTGA	6300
AACAAGTACA GCCCTAGGTT TGATTGTTAT GTTTGCACAA TTTTCACAGC AGTACTACCA	6360
GCCTATTATC CAAGTTGCAG CGAGTTGGGG AAGCCTTCAG TTGGCCTTTA CTGGAGCTGA	6420
ACGAATTCAG GAAATGTTTG ATGCAGAGGA GGAAATCCGA CCTGAAAAGG CTCCAACCTT	6480
CACTAAGTTG CAAGAAAGTG TTCAAATCAG TCATATCGTT TTTTCATACT TGCCTGATAA	6540
ACCTATTTTG AAAGATGTCA GCATTTCTGC CCCTAAAGGC CAGATGACAG CAGTTGTTGG	6600
GCCGACAGGT TCAGGAAAAA CGACTATTAT GAACCTCATC AATCGCTTTT ATGATGTTGA	6660
TGCTGGTGGT ATTTATTTTG ATGGTAAAGA CATTGCTGGC TATGACTTAG ATAGTCTTAG	6720
AAGCAAGGTG GGAATTGTAT TGCAAGATTC GGTCTTGTTT AGCGGAACGA TTAGAGACAA	6780
TATCCGATTT GGTGTGCCAG ATGCTAGTCA GGAAATGGTT GAGGTAGCAG CAAAAGCAAC	6840
CCACATTCAC GACTATATCG AAAGTTTGCC TGATAAGTAC GATACTCTTA TTGATGATGA	6900
CCAGAGCATC TTTTCAACAG GGCAGAAGCA ATTGATTTCA ATCGCTCGAA CCCTGATGAC	6960
AGATCCAGAA GTTCTCATT TCGATGAAGC AACTTCAAAC GTAGATACGG TGACAGAAAG	7020
CAAGATTCAG CATGCCATGG AGGTGGTTGT AGCAGGTAGA ACTAGTTTCG TCATTGCCCA	7080
CCGCTTGAAA ACCATTCTCA ATGCAGATCA GATTATTGTC CTTAAAGATG GAGAAATCAT	7140
TGAACGTGGT AACCACCATG AACTTTTGAA GCTAGGTGGC TTTTATTTCAG AACTCTATCA	7200
CAATCAATTT GTTTTCGAAT AAGAAAGAAG TTGTCCTATG TGGGCAGCTT TTTCTTGTCC	7260
ATAAAAAATG TTTATCACAG CCTTAAAAAA AACATATTAG ACGAAAGTCA TTTTGAGTGA	7320
TATGATAGGA CTATCGTTAG CATTCGAAAG GAGAGGCATC ATGGCTAGAA CGGTTGTAGG	7380
AGTTGCTGCA AATCTATGTC CCGTAGACGC AGAAGGCCAA ATCATTTCATT CATCTGTATC	7440

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TTGTAGATTG GCAGAGATCA TTCGTCAAGT CGGTGGTCTC CCTTTAGTCA TTCCTGTTGG	7500
TGATGAGTCA GTTGTACGTG ATTATGTGGA AATGATTGAC AAACTCATTT TGACAGGAGG	7560
CCAAAATGTT CATCCTCAGT TTTATGGAGA GAAAAAGACC GTCGAGAGCG ATGATTACAA	7620
TCTGGTCCGT GACGAATTTG AATTGGCACT CTTGAAGGAA GCGCTTCGTC AGAATAAACC	7680
AATTATGGCA ATCTGTCGCG GTGTCCAAC TGTCAATGTT GCCTTTGGTG GAACCCCTCAA	7740
TCAAGAAATC GAAGGTCAGG	7760

(2) INFORMATION FOR SEQ ID NO: 64:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2723 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 64:

GAGGTTTTAA TTCACTTACC TCTSCCGTAT CTTTATTTAA AATGAATTCT TTTACGGTTG	60
TATTTCTTGC AAAATCTTTT ACAACAATCT TAATGTTTAG TGTCTTGTCT ATTATTTGTT	120
TAATATCATT AAATGATGTA TATCTTTTC CATTATATA AATATGTTGT TCTTGAATCT	180
CACCATCGAA TCCATTATTT CTTTATCAT TGATGTTAAA GACTACAGAT TTTCCATCAG	240
CATATTCGAT ACTAGTATTT CCCTTAGGAT CAATGTTTAC TTCGGGTTTA ACATTATCAT	300
ATAAAAACTG ATAGTGGACT CCAACTGCTT TAGCATTCAA ATCGCTATAG CCAGTTTGAA	360
GATAAACATT TCCATCCATA TCTGTTACCT TATCTGGAAA TCCGTTTGCT TTATAGTCTT	420
TCATTCCCCA GTCCATGATG TCACCGTCTT TAACATTCAG CTTAATATTA AAATCTCTAG	480
TGTTATCAAT GTGTAAATCT CCGTAGATTA AATAATTATC TACAACCGAT TCATTAACTC	540
TCAATTCCCA GTTAAAACCA CCCTTATCAG AAATCTTACC TETTAAATAA AATTCTGGAT	600
TTCGTACATA AATTTTATTA GATTTAGATG GATTAAAGTA GTTCTTATCC ATTGAAAGGT	660
TTACTGGTTT GGTATCAATA AATAACATGG AGCCATCTTC TTTTATAGCT TCTACATTGA	720
ACTTATCCTC TCCAGTGTAT TCTTTATCAT CTTACCAAAA TAATACAAGT TTAGAAGAAT	780
CTGTCACAAG ATTTCCGTCT TTATCGATAG CTTCCCTTTT ATCGTTCATT TTAAATGTAA	840
ACACTTGATA CCTTATAATG TTAAAGCCGT CCAAAGCCGA CATTAAATACA GATTGGGTAC	900
TTCTTCCATC TTCAACATTT CTAATATCAG CATAAATTGT TGTTTCTGAA AGGGCTCTTA	960
GATTAGGATT GGCCTTTGT ATTTTGTGTA TATCTTCCTT GCTATAGACT CCATTTCTT	1020

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CTAACATATC CGTTTTTCCA GGATTATAGG TAGTCACTTT TAGTGCATAG CCTTTTCTTA	1080
GAATGATATT ATCCTTTAAC AGATATTGTT GTTTTTCTGA ATCAGAATAG ATTTTACCAG	1140
ATTCCATTTT AGTTAAATTG TCTGGTTTGT TTTTGAAAAG ATCTCCTTCC CCTAATTCTA	1200
TGACATTCCC ATAAC TTGAT ACATAGGGAT ATTCTGATTT AGTTTCCTTA ATTTTTCAG	1260
GCATTCTAAT TTAAATTTCA GCTTTTTTCT GATCATTATC TTTAACAAAT AATCTCATAT	1320
CTCCTGCAAA AGCTAATCCA TCCACAATAT CATTAATATT AGCGTATAGA TCAAATGTCA	1380
TCGTTTTTGA GTGGAAATCA TACTTGGTCG CTTTGATTTT TATAGATTTA TAGTTATTCC	1440
CATAATATAC CTTGGCATTT TTAGAAACAT TACTTATCTT TCCAAGAATT TCAAAGTGTC	1500
CATCTTTAGA CGGACTTAGA ACACCATAAA TTTTGTGATT GATTTCGTCA AGTTTCTCAG	1560
TTTCATATTG TAGATCAGTC CCATCATCGT AGGCTATTAT ATTTCTTTTA TCATCGTATT	1620
TATAATCGTA TTCCTCCATT CTCTTACCAG TTTCACTTGT AAAATCATCA ACTTCTCTAA	1680
ATTTCTTTTT AATGAGTTTC TTTAAGTCTT TATTTTCAAA GTCTCTAATT GTTGAAATAT	1740
TTCTATCAAT AGTAAACTA GATTTTCTT TAATAGACTC TTCATTTTCT TGATGATGAT	1800
GTCTACCCC AGTTGTATCT TTTTTTAGAC TACCCTCTTT TCCATTTCTT AAATTTTAA	1860
ATTTAGATTG TGCAATCTCG CCAAGCTTTT GATATTTAGA TGAATCTTGA TCAGGATCTA	1920
CTAGATAATA GGAAATCATC CCCTTTTCAT CAGCCTGATT AGCAAATTTA ATTCTATGAA	1980
TCTTTGTGAA ATTGCTAGAA CCATCTAATG CAATGACTTC AATGATTTTT CCCCTTAAAT	2040
CTCCCGCACC TTTAATTTCA TAAATGGTAT TTCCGTCTTT ATCAAGTTTT CTATTCTTC	2100
CTTGACCCTC ACCTGCGTAA GTTACTTCAA GATTTTTTTC AACCTCTCCA TCTTCATTAA	2160
CAAGAGCGGC GCCAGCATAC CAAACTTCGT TCGCAATCTC GTCAAATTTT TCAGGATGTT	2220
CTTTTTGATC TCTCGCAAAT AGCGTTTCAT TCTTATACTG ATCTTTTACC TTATGATAAG	2280
TATCCTTTGT AATCAACTTA ATTTTTTCAG GATTTGAAAA ATCAACCGAA ACAATCTTAG	2340
GGGCGGTGTT ATCAATTTT ACAGGAATAT AGGAAACCTG CCATGGGTAA TCTTTAGTTA	2400
ATCTATATTT AAATTTATAG AAATATTGAC CTTCGGCAAT CGGTTCAAAT TGACCTCTTA	2460
TCTTAGTAGC AGGATCTTGA TTATCCTTAC TTTCTGGTGC ATTTTCTTCT CTACCTCTAG	2520
GATTATAGAT GAGTCCATCC CACTTCAAGT CACCCCAAAC TTTTAGTTTA GATGATTGTA	2580
TTCCCTTTGC ATCATTGCTT TTAGAAATTA AAATTCCTCT AATAAAGTGT TCTCTCGAAA	2640
TGACTTTTAA GTCTCTTTGA TTTCTCCCT CTTATTGTTG ATTTACTATT GAAATCAATC	2700
CTTCTTCTGC ACTTCTTAAT ACA	2723

(2) INFORMATION FOR SEQ ID NO: 55:



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## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11811 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 65:

AAAAAAGTGG GAATGACTCA AATCTTCACT GAAGCTGGCG AATTGATCCC TGTAACAGTT	60
ATTGAAGCAA CTCCAAACGT TGTCTTCAA GTTAAACTG TTGAAACAGA CGGATACAAC	120
GCTATCCAAG TTGGTTTCGA TGACAAACGC GAAGTATTGA GCAACAAACC TGCTAAAGGA	180
CATGTAGCGA AAGCTAACAC GGCTCCTAAG CGCTTCATTC GTGAATTCAA AAACGTTGAA	240
GGCTTGGAAG TTGGTGCTGA AATTACAGTT GAAACATTCG CAGCTGGAGA CGTTGTTGAC	300
GTAACGGGTA CTTCTAAAGG TAAAGGTTTC CAAGGTGTTA TCAAACGCCA CGGACAATCA	360
CGTGGACCAA TGGCTCACGG TTCTCGTTAC CACCGTCGTC CAGGTTCTAT GGGGCCTGTT	420
GCACCTAACC GCGTATTCAA AGGTAAAAAC CTTGCAGGAC GTATGGGTGG CGACCGCGTA	480
ACAATTCAAA ACCTTGAAGT TGTACAAGTT GTTCCAGAAA AGAACGTTAT CCTTATCAAA	540
GGTAACGTAC CAGGTGCTAA GAAATCTCTT ATCACTATCA AATCAGCAGT TAAAGCTGGT	600
AAATAATAAA GAAAGGGGAA ATCAGTCACA ATGGCAAACG TAACATTATT TGACCAAACCT	660
GGTAAAGAAG CTGGCCAAGT TGTCTTAGC GATGCAGTAT TTGGTATCGA ACCAAATGAA	720
TCAGTTGTGT TTGATGTAAT CATCAGCCAA CGCGCAAGCC TTCGTCAAGG AACACACGCT	780
GTAAAAAACC GCTCTGCAGT ATCAGGTGGT GGACGCCAAC CATGGCGTCA AAAAGGAACT	840
GGACGTGCTC GTCAAGGTTG TATCCGCTCA CCACAATGGC GTGGTGCTGG TGTGTCTTTC	900
GGACCAACTC CACGTTTATA CGGCTACAAA CTTCCACAAA AAGTTCGTCG CCTAGCTCTT	960
AAATCAGTTT ACTCTGAAAA AGTTGCTGAA AACAAATTCG TAGCTGTAGA CGCTCTTTCA	1020
TTTACAGCTC CAAAACTGC TGAATTTGCA AAAGTTCTTG CAGCATTGAG CATCGATTCT	1080
AAAGTTCTTG TTATCCTTGA AGAAGGAAAT GAATTCGCAG CTCTTTCAGC TCGTAACCTT	1140
CCAAACGTGA AAGTTGCAAC TGCTACAACCT GCAAGTGTTT TTGACATCGC AAATAGCCAC	1200
AAACTTCTTG TCACACAAGC AGCTATCTCT AAAATCGAGG AGGTTCTTGC ATAATGAATT	1260
TGTATGATGT TATCAAAAAA CCTGTCATCA CTGAAAGCTC AATGGCTCAA CTTGAAGCAG	1320
GAAAAATATGT ATTTGAAGTT GACACTCGTG CACACAAACT TTTGATCAAG CAAGCTGTTG	1380
AAGCTGCTTT CGAAGGTGTT AAAGTTGCCA ATGTTAACAC AATCAACGTA AAACCAAAAG	1440

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CTAAACGTGT TGGACGTTAC ACTGGTTTTA CTAACAAAAC TAAAAAAGCT ATCATCACAC	1500
TTACAGCTGA TTCTAAAGCA ATCGAGTTGT TTGCTGCTGA AGCTGAATAA TCTAAGGAGG	1560
AAATATCGTG GGAATTCGTG TTTATAAACC AACAACAAAC GGTCGCCGTA ATATGACTTC	1620
TTTGATTTC GCTGAAATCA CAACAAGCAC TCCTGAAAAA TCATTGCTTG TTGCATTGAA	1680
GAGCAAGGCT GGTCGTAACA ACAACGGTCG TATCACAGTT CGTCACCAAG GTGGTGGACA	1740
CAAACGTTTC TACCGTTTGG TTGACTTCAA ACGTAATAAA GACAACGTTG AAGCAGTTGT	1800
TAAAACAATC GAGTACGATC CAAACCGTTC TGCAACATC GCTCTTGATC ACTACACTGA	1860
CGGTGTGAAA GCATACATCA TCGCTCCAAA AGGTCTTGAA GTAGGTCAAC GTATCGTTTC	1920
AGGTCCAGAA GCAGATATCA AAGTCGGAAA CGCTCTTCCA CTTGCTAACA TCCCAGTTGG	1980
TACTTTGATT CACAACATCG AGTTGAAACC AGGTGCTGGT GGTGAATTGG TACGTGCTGC	2040
TGGTGCACTC GCTCAAGTAT TGGGTTCTGA AGGTAAATAT GTTCTTGTTT GTCTTCAATC	2100
AGGTGAAGTT CGTATGATTC TTGGAACCTG CCGTGCTACA GTTGGTGTG TCGGAAACGA	2160
ACAACATGGA CTTGTAAACC TTGGTAAAGC AGGACGTAGC CGTTGGAAAG GTATCCGCCC	2220
AACAGTTCGT GGTTCGTGTA TGAACCTTAA CGATCACCCA CACGGTGGTG GTGAAGGTAA	2280
AGCACCAGTT GGTCGTAAAG CACCATCTAC TCCATGGGGC AAACCTGCTC TTGGTCTTAA	2340
AACTCGTAAC AAGAAAGCGA AATCTGACAA ACTTATCGTT CGTCGTCGCA ACGAGAAATA	2400
ATATTAAACT AGTCGCTTAA GCAACTAGTA AATCCGCCAG CTCGGTAGCG CTCCATAGGA	2460
GTGCAAGCCG CTGTGGTACA ACATTTAAAG GAGAAAATAT AAAAATGGGA CGCAGTCTTA	2520
AAAAAGGACC TTTCGTCGAT GAGCATTGTA TGAAAAAGT TGAAGCTCAA GCTAACGACG	2580
AAAAGAAAA AGTTATTAAA ACTTGGTCAC GTCGTTCAAC GATCTTCCCA AGTTTCATTG	2640
GTTACACTAT TGCAGTTTAT GACGGACGTA AACACGTACC TGTTTACATC CAAGAAGACA	2700
TGGTAGGCCA CAAACTTGGT GAATTTGCAC CAACTCGTAC TTACAAAGGT CACGCTGCAG	2760
ACGACAAGAA AACACGTAGA AAATAAGGAG AACATAAATG GCAGAAATTA CTTACAGTAA	2820
AGCAATGGCT CGTACAGTAC GTGTTTCACC TCGTAAATCA CGTCTTGTTT TTGATAACAT	2880
CCGTGGTAAA AGCGTAGCCG ATGCAATCGC AATCTTGACA TTCACTCCAA ACAAAGCTGC	2940
TGAAATCATC TTGAAAGTTT TGAATCAGC TGTAGCTAAC GCTGAAAACA ACTTTGGTTT	3000
GGATAAAGCT AACTTGGTAG TATCTGAAGC ATTGCGAAAC GAAGGACCAA CTATGAAACG	3060
TTTCCGTCCA CGTGCAGAAAG GTTCAGCTTC ACCAATCAAC AAACGTACAG CTCACATCAC	3120
TGTAGCTGTT GCAGAAAAAT AAGGAGGTAA AATCGTGGGT CAAAAAGTAC ATCCAATTGG	3180
TATGCGTGTC GGCATCATCC GTGATTGGGA TGCCAAATGG TATGCTGAAA AAGAATACGC	3240

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GGATTACCTT CATGAAGATC TTGCAATCCG TAAATTCGTT CAAAAAGAAC TTGCTGACGC	3300
AGCAGTTTCA ACTATTGAAA TCGAACGCGC AGTAAACAAA GTTAACGTTT CACTTCACAC	3360
TGCTAAACCA GGTATGGTTA TCGGTAAAGG TGGTGCTAAC GTTGATGCAC TCCGTGCAAA	3420
ACTTAACAAA TTGACTGGAA AACAAGTACA CATCAACATC ATCGAAATCA AACAACTGA	3480
TTTGGATGCT CACCTTGTAG GTGAAGGAAT TGCTCGTCAA TTGGAGCAAC GTGTTGCTTT	3540
CCGTCGTGCA CAAAAACAAG CAATCCAACG TGCAATGCGT GCTGGAGCTA AAGGAATCAA	3600
AACTCAAGTA TCAGGTCGTT TGAACGGTGC AGATATCGCC CGTGCTGAAG GATACTCTGA	3660
AGGAACTGTT CCGCTTCACA CACTTCGTGC AGATATCGAT TACGCTTGGG AAGAAGCAGA	3720
TACTACATAC GGTAACCTTG GTGTTAAAGT ATGGATCTAC CGTGGTGAAG TTCTTCCAGC	3780
TCGTAAAAAC ACTAAAGGAG GTAAATAACC AATGTTAGTA CCTAACGTG TTAACACCG	3840
TCGTGAGTTC CGTGAAAAA TGC CGGTGA AGCAAAAGGT GGAAAAAG TAGCATTCCG	3900
TGAATACGGT CTTCAAGCTA CAACTAGCCA CTGGATCACT AACCGCCAAA TCGAAGCTGC	3960
TCGTATCGCC ATGACTCGTT ACATGAAACG TGGTGGTAAA GTTTGGATTA AAATCTTCCC	4020
ACACAAATCA TACTACTGTA AAGCTATCGG TGTGCGTATG GGATCTGGTA AAGGGGCACC	4080
TGAAGGTGG GTAGCACCAG TTAACGTGG TAAAGTGATG TTCGAAATCG CTGGTGTATC	4140
TGAAGAGATT GCACGTGAAG CGCTTCGACT TGCTAGCCAC AAATTGCCAG TTAATGTAA	4200
ATTCGTAAAA CGTGAAGCAG AATAAGGAGA AGGCATGAAA CTTAATGAAG TAAAGAATT	4260
TGTTAAAGAA CTTCTGGTC TTTCTCAAGA AGAACTCGCG AAGCGCGAAA ACGAATTGAA	4320
AAAAGAATTG TTTGAACCTC GTTCCAAGC TGCTACTGGT CAATTGGAAC AAACAGCTCG	4380
CTTGAAAGAA GTTAAAAAAC AAATCGCTCG CATCAAAACA GTTCAATCTG AAGCGAAATA	4440
ATAGACTAGG GAAGGAGAAA TTTCAATGGA ACGCAATAAT CGTAAAGTTC TTGTTGGACG	4500
TGTTGTATCT GACAAAATGG ACAAGACAA CACAGTTGTA GTTGAAACAA AACGTAACCA	4560
CCCAGTCTAT GGTAACGTA TTAAGTCTC TAAAAAATAC AAAGCTCATG ATGAAAACAA	4620
TGTTGCCAAA GAAGGCGATA TCGTACGTAT CATGGAAACT CGCCCGCTTT CAGCTACAAA	4680
ACGTTTCCGT CTTGTAGAAG TTGTTGAAGA AGCGGTCATC ATCTAATCAA ACCTGAAAGG	4740
AGAAAACTGA AATGATTCAA ACAGAACTC GTTTGAAAGT CGCAGACAAC AGCGGTGCTC	4800
GCGAAATCTT GACTATCAAA GTTCTTGGTG GTTCAGGACG TAAATTGCA AACATCGGTG	4860
ATGTTATCGT GGCATCTGTA AAACAAGCTA CTCCTGGTGG TCGCGTTAAA AAAGGTGACG	4920
TTGTTAAAGC AGTTATCGTT CGTACTAAAT CAGGTGCTCG TCGTCTGAT GGTTCATACA	4980

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TCAAATTTGA CGAAAACGCA GCAGTTATCA TCCGTGAAGA CAAAACTCCT CGCGGAACAC	5040
GTATCTTTGG CCCAGTTGCA CGTGAATTGC GTGAAGGTGG CTTGATGAAG ATCGTGTAC	5100
TTGCTCCAGA AGTACTTTAA TTTTATAGGAA CAACTAGTC CCCTAGCTTC AAGCTAGGGT	5160
CCCCTTATGG GCGTAAGAAA AATCAAGGAG AAACCTAATG TTTGTAAAAA AAGGCGACAA	5220
AGTTCGCGTA ATCGCTGGTA AAGATAAGGG AACAGAAGCT GTTGTCTTA CTGCCCTTCC	5280
AAAAGTAAAC AAAGTTATCG TTGAAGGTGT TAACATTGTT AAGAAACACC AACGTCCAAC	5340
TAACGAGCTT CCTCAAGGTG GTATCATCGA GAAAGAAGCA GCTATCCACG TATCAAACGT	5400
TCAAGTTTTG GACAAAAATG GTGTAGCTGG TCGTGTGGA TACAAATTTG TAGACGTTAA	5460
AAAAGTTCGC TACAACAAAA AATCAGGCGA AGTGCTTGAT TAATCAGGAA GGAAAGGAGA	5520
AGTATAATGG CAAATCGTTT AAAAGAAAAA TATCTTAATG AAGTAGTTCC TGCTTTGACA	5580
GAACAATTC AACTACTATC AGTGATGGCT GTGCCTAAAG TAGATAAGAT TGTTTTGAAC	5640
ATGGGTGTTG GTGAAGCTGT ATCAAACGCT AAAAGCCTTG AAAAAGCTGC TGAAGAATTG	5700
GCACCTATCT CAGGTCAAAA ACCACTTATC ACTAAAGCTA AAAAACTCAAT CGCCGGCTTC	5760
CGTCTTCGTG AAGGTGTTGC GATCGGTGCA AAAGTTACCC TTCGTGGTGA ACGTATGTAC	5820
GAATTCCTGG ATAAATTGGT ATCAGTTTCA CTTCCACGTG TACGTGACTT CCACGGTGTC	5880
CCAACAAAAT CATTTGATGG ACGCGGGAAC TACACACTTG GTGTGAAAGA ACAATTATC	5940
TTCCAGAAA TCAACTTCGA TGACGTTGAC AAAACTCGTG GTCTTGACAT CGTTATCGTA	6000
ACAACTGCTA AACTGACGA AGAGTCACGT GCATTGCTTA CAGGCCTTGG AATGCCTTTT	6060
GCAAAATAAT ATAGGAGGTA AATCTAATGG CTAAAAATC AATGGTACCT AGAGAGGCTA	6120
AACGCCAAAA AATTGTTGAC CGTTATGCTG AAAACCTGC TCCATTAAAG GCGGCAGGGG	6180
ACTACGAAGG TTTATCTAAA TTACCTCGCA ACGCCTCACC GACTCGTTTA CATAATCGTT	6240
GTAGGGTTAC GGGGCGCCCA CATTGAGTTT ACCGCAAATT TGGTCTGAGT CGTATCGCTT	6300
TTCCGGAAT TGCGCATAAA GGTCAAATTC CTGGTGTAAC AAAAGCATCT TGCTAATTTA	6360
AGATATCAAG AGCGTCAAAA CTCCAAGTAA AAATAGGAAA CTTGACGAAG AACTAAAGT	6420
TTCTAGGAAA GTTTATCTTT TTCACACAGA GTTTAGCCCG GGTCAATTG GGCTTGCCAA	6480
TTTGAACACG AGCTACAGCT TTGGCAAAAA AGACCAATTT GCTTTGGAGC ATTGCTTCTG	6540
CATTAAATTG TCTATTTTTC CTCGTGCTGT TACGCTCTT GTATCATGTA TTAAGTAGCA	6600
AGTGCAACTT GCAAACTACT AGTAAGAGGA GAAAAACAAA ATCGTTATGA CTGACCCAAT	6660
CGCAGACTTC CTAAGTCGTA TTCGTAATGC TAACCAAGCT AAACACGAAG TACTTGAAGT	6720
ACCTGCATCA AACATCAAAA AAGGGATTGC TGAATCCTT AAACGCGAAG GTTTTGTAAG	6780

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AAACGTTGAA ATCATTGAAG ATGACAAACA AGGCGTCATC CGTGTATTTT TAAATACGG	6840
ACCAAAATGGT GAGAAAGTTA TCACTAACTT GAAACGTGTT TCTAAACCAG GACTTCGTGT	6900
CTACAAAAAA CGTGAAGACC TTCCAAAAGT TCTTAACGGA CTTGGAATTG CCATCCTTTC	6960
AACCTCTGAA GTTTTGCTTA CTGATAAAGA AGCACGCCAA AAGAATGTTG GTGGTGAGGT	7020
TATCGCTTAC GTTTGGTAAA ATCAAGATAC AAAGCTCGTA AAGAACAAAG CAAAATTAGG	7080
AAGTTGGAGA AGTTTGTTTA CAAACAAGCC AACTTATCTA TTTTGCACAG TTCTTAGAGC	7140
GTGTTCAAGT CAGCTCTTGA ACTAAATAAG TATCTGAACC CCGTAAAAAC TGGCCGTCT	7200
GGCCTGACAA TTAAACAGGA GAAAATAAAC ATGTCACGTA TCGGTAATAA AGTTATCGTG	7260
TTGCCTGCTG GTGTTGAAGT CGCTAACAAT GACAACGTTG TAACTGTAAA AGGATCTAAA	7320
GGAGAACTTA CTCGTGAGTT CTCAAAAGAT ATTGAAATCC GTGTGGAAGG TACTGAAATA	7380
ACTCTTCACC GTCCAAACGA TTCAAAGAA ATGAAAACTA TCCACGGAAC TACTCGTGCC	7440
CTTTTGAACA ACATGGTTGT TGGTGTATCA GAAGGATTCA AGAAAGAACT TGAATGCGT	7500
GGGGTTGGTT ACCGTGCACA GCTTCAAGGA TCTAAACTTG TTTTGGCTGT TGGTAAATCT	7560
CATCCAGACG AAGTTGAAGC TCCAGAAGGA ATTACTTTTG AACTTCCAAA CCCAACAACA	7620
ATCGTTGTTA GCGGAATTTT AAAAGAAGTA GTTGGTCAAA CAGCTGCTTA CGTACGTAGC	7680
CTTCGTTTAC CAGAACCATA TAAAGGTAAA GGTATCCGTT ACGTTGGTGA ATTCGTTCCG	7740
CGTAAAGAAG GTAAAACAGG TAAATAATGT TGAGTGGTTG ATCATCAACC ACCAACCAT	7800
TTTCCAACCT TGTGCATAGC ACACGATTTA AACTAAAGA GGTGAAAACT GTGATTTCAA	7860
AACCAGATAA AAACAAACTC CGCCAAAAAC GCCACCGTCG CGTTCGCGGA AAACCTCTCT	7920
GAACCTGCTG TCGCCACGTT TGAACGTAT TCCGTTCTAA TACAGGCATC TACGCTCAAG	7980
TGATTGATGA CGTAGCGGGT GTAACGCTCG CAAGTGCTTC AACTCTTGAT AAAGAAGTTT	8040
CAAAAGGAAC TAAACTGAA CAAGCCGTTG CTGTCGGTAA ACTCGTTGCA GAACGTGCPA	8100
ACGCTAAAGG TATTTTCAAG GTGGTGTTTC ACCGCGGTGG ATATCTATAT CACGGACGTG	8160
TGAAAGCTTT GGCTGATGCA GCTCGTGAAA ACGGATTGAA ATTCTAATAG GAGGACACTA	8220
GAAAATGGCA TTAAAGACA ATGCAGTTGA ATTAGAAGAA CGCGTAGTTG CTGTCAACCG	8280
TGTTACAAAA GTTGTTAAAG GTGGACGTCG TCTTCGTTTC GCAGCTCTTG TTGTTGTTGG	8340
TGACCACAAT GGTGCGGTAG GATTGCTTAC TGGTAAAGCT CAAGAAGTTC CAGAAGCAAT	8400
CCGTAAAGCA GTAGATGATG CTAAGAAAAA CTTGATCGAA GTTCCTATGG TTGGAACAAC	8460
AATCCACAC GAAGTTCTTT CAGAATTCGG TGGAGCTAAA GTATTGTTGA AACCTGCTGT	8520

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AGAAGGTTCT GGAGTTGCCG CTGGTGGTGC AGTTCGTGCC GTTGTGGAAT TGGCAGGTGT	8580
GGCAGATATT ACATCTAAAT CACTTGGTTC TAACACTCCA ATCAACATTG TTCGTGCAAC	8640
TGTTGAAGGT TTGAAACAAT TGAAACGCGC TGAAGAAATT GCTGCCCTTC GTGGTATTTC	8700
AGTTTCTGAT TTGGCATAAG AAAGGGGATA AAATGGCTCA AATTAAAATT ACTTTGACTA	8760
AGTCTCCAAT CGGACGCATT CCATCACAAC GTAAACTGT TGTAGCACTT GGACTTGGCA	8820
AATTGAACAG CTCTGTTATT AAAGAAGATA ACGCTGCTAT CCGTGGTATG ATCACAGCAG	8880
TATCTCACTT AGTAACAGTT GAAGAAGTAA ACTAATGAAG TTTTAGGGGA TGTGCACTGT	8940
ACCATCCCTT AAAACTAGAT ATAGTCATCT ATGATGACAT CGTATAGGCG AGTTGATGGG	9000
GGAGACAACC TTTTCTCCCT TATCGGCCCT AGCATTTTAC AAAAGAGGAG AAAATAAAAA	9060
TGAAACTTCA TGAATTGAAA CCTGCAGAAG GTTCTCGTAA AGTACGTAAC CGCGTTGGTC	9120
GTGGTACTTC ATCAGGTAAC GGTA AACAT CTGGTCGTGG TCAAAAAGGT CAAAAGCTC	9180
GTAGCGGTGG CGGAGTTGCG CTGTGTTTTG AAGGTGGACA AACTCCATTG TTCGTCGTC	9240
TTCCAAAACG TGGATTCACT AACATCAACG CTAAAGAATA CGCAATTGTG AACCTTGACC	9300
AATTGAACCT CTTTGAAGAT GGTGCTGAAG TAACTCCACT TGTTCATTATC GAAGCAGGAA	9360
TTGTTAAAGC TGAAAAGTCA GGTATTAAAA TTCTTGGTAA CGGTGAGTTG ACTAAGAAAT	9420
TGACTGTGAA AGCAGCTAAA TTCTCTAAAT CAGCTGAAGA AGCTATCACT GCTAAAGGTG	9480
GTTCAGTAGA AGTCATCTAA GAGAGGTGAC CTATGTTTTT TAAATTATTA AGAGAAGCTC	9540
TTAAAGTCAA GCAGGTTCCA TCAAAAATTT TATTTACAA TTTTATCGTT TTGGTCTTTC	9600
GTATCGGAAC TAGCATTACA GTTCTGGTG TGAATCCCA TAGCTTGAAT GCTTTAAGTC	9660
GATTATCCTT CTTAAACATG TTGAGCTTGG TGTGGGGGAA TGCCCTAAAA AACTTTTCCA	9720
TTTTTGCCCT AGGAGTTAGT CCTATATCA CCGCTTCTAT TGTGTGCTAA CTCTTGCAAA	9780
TGGATATTTT ACCCAAGTTT GTAGAGTGGG GTAAACAAGG GGAAGTAGGT CGAAGAAAAT	9840
TGAATCAAGC TACTCGTTAT ATTGCTCTAG TTCTCGCTTT TGTGCAATCT ATCGGGATTA	9900
CAGCTGGTTT TAATACCTTG GCTGGAGCTC AATTGATTAA AACTGCTTTA ACTCCACAAG	9960
TTTTTCTGAC GATTGGTATC ATCTTAACAG CTGGTAGTAT GATTGTCACT TGGTTGGGTG	10020
AGCAAATTAC AGATAAGGGA TACGGAAACG GTGTTTCCAT GATTATCTTT GCCGGGATTG	10080
TTTCCTCAAT TCCAGAGATG ATTCAGGGCA TCTATGTGGA CTACTTTGTG AACGTCCCAA	10140
GTAGCCGTAT CACTTCATCT ATCATTTTCG TAATCATTTT GATTATTACT GTATTGTTGA	10200
TTATTACTT TACAACCTAT GTTCAACAAG CAGAATACAA AATTCCAATC CAATATACTA	10260
AGGTTGCACA AGGTGCTCCA TCTAGCTCTT ACCTTCCGT AAAAGTAAAC CCTGCTGGAG	10320

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TTATCCCTGT TATCTTTGCC AGTTCGATTA CTGCAGCCTG CGGCTATTCT TCAGTTTTTG	10380
AGTGCCACAG GTCATGATTG GGCTTGGGTA AGGGTAGCAC AAGACATGTT GGCAACTACT	10440
TCTCCAACTG GTATTGCCAT GTATGCTTTG TTGATTATTC TCTTTACATT CTCTATACG	10500
TTTGTACAGA TTAATCCTGA AAAAGCAGCA GAGACCTAC AAAAGAGTGG TGCCTATATC	10560
CATGGAGTTC GTCCTGGTAA AGGTACAGAA GAATATATGT CTAAACTTCT TCGTCGTCTT	10620
GCAACTGTTG GTTCCCTCTT CCTTGGTGTG ATTTCCATTT TACCGATTGC AGCTAAAGAT	10680
GTATTTGGTC TTTCTGATGT TGTTCCTTTT GGTGGAACAA GTCTCTTGAT CATTATCTCT	10740
ACAGGTATCG AAGGAATCAA GCAATTGGAA GGTACCTAT TGAAACGTAA GTATGTTGGT	10800
TTCATGGACA GAACAGAATA AAAGTATTTA CTGAATCAGT AAATACTGAG GGAGTGGAGG	10860
TTTAAACTCT GACATTTGTA AGAGTTGGAT CTCCCTCTT CTATTTTGT TTTAAATCGG	10920
GGTGAAAAGA CTTTTGCTT CTATTTAAAA ATAAATAAG GAGATCAAAT CATGAATCTT	10980
TTGATTATGG GCTTACCTGG TGCAGGTAAG GGAACCAAG CAGCAAAAAT CGTAGAACAA	11040
TTCCATGTTG CACATATCTC AACAGGTGAT ATGTTCCGGC CTGCAATGGC AAATCAAAC	11100
GAAATGGGTG TTCTTGCTAA GTCATATATT GACAAGGGTG AATTGGTTCC TGACGAAGTT	11160
ACAAATGGAA TCGTAAAAGA ACGCCTTTCA CAAGATGATA TTAAAGAAAC AGGATTCTTA	11220
TTGGATGGTT ACCCACGTAC AATTGAACAA GTCATGCCT TGGACAAAAC ATTGGCTGAA	11280
CTTGGCATTG AACTAGAAGG TGTATCAAT ATTGAAGTA ACCCTGACAG CCTTTTGAA	11340
CGTTTGAGTG GCGTATCAT CCACCGCGTA ACTGGAGAAA CTTTCCACAA GGTCTTTAAC	11400
CCACCAGTTG ACTATAAGA AGAAGATTAC TACCAACGTG AAGATGATAA GCCTGAGACA	11460
GTAAAACGTC GTTTGGATGT TAATATTGCT CAAGGAGAAC CAATCATTGC TCACTACCGT	11520
GCCAAAGGTT TGGTTCATGA CATCGAAGGT AATCAAGATA TCAATGATGT CTTCTCAGAT	11580
ATTGAAAAAG TATTGACAAA TTTGAAATAA AGCGTTTTTC ACACTTGCAA AAATCCGCTA	11640
CAAATGTTAT ACTGAGATAG TCTGACTTAT AATTGTTGTC TCTGTCTTA GAGGCATCGA	11700
ATCGAAATTT ATGGAGGTGC TTTTGGTGG CAAAAGACGA TGTGATTGAA GTTGAAGGCA	11760
AAGTAGTTGA TACAATGCCG AATGCAATGT TTACGGTTGA ACTTGAAAAT GGACATCAGA	11820
TTTTAGCAGG G	11831

(2) INFORMATION FOR SEQ ID NO: 66:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 10726 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double

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(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 66:

CCCCGCATTT GAAAGCTATT CGTGAAGGAT TTATGATGGC AATGCCTTTG ATTTTAGTCG	60
GCTCTTTATT TCTTATTCTA ATCAGTTGGC CTCAAGAGGC TTTTACAAAT TGGCTGAATA	120
GTGTTGGATT GCTAAGTATC TTGACAACTA TGAATCAGTC AACAGTAGCG ATTATCTCCT	180
TGGTCGCTTG TTTCGGTATT GCCTACAGGT TGTCCGAAGG ATATGGTACA GATGGTCCGT	240
CGGCAGGGAT CATAGCCTTA TCCAGTTTIG TATTGATGGC ACCTCGTTTT TCGAGTATGG	300
TTTATGATAA AAATGGGGAG CAGGTCAAGC AGTTATTTGG CGGCGCAATA CCATTTTCTA	360
GCCTGAATGC ATCTTCTTTG TTTATGGCGA TTAATTTGG ATTGGTTACA GCAGAGATTT	420
ATCGTATGTT TATCCAGCGC GGAATTACGA TAAAAATGCC AAGTGGTGTC CCAGATGTAG	480
TAAGTAAATC ATTTTCAGCT CTTTTATCTG GTTTTACTAC TTTTGTTTTG TGGGCTTTGG	540
TCTTAAAAGG TCTTGAAGCG GCAGGAGTTG CAGGAGGTCT CAACGGAATC CTAGGTGCAA	600
TTGTTGGAAC ACCGCTTAAG TTAATTGCAG GAACGCTTCC AGGTATGATT CTATGTGTTA	660
TTGTAAATC ATTCTTTTGG TTCTGTGGAG TTAATGGGGG ACAAGTTTTA AATGCTTTTG	720
TAGACCCAGT TTGGTTACAA TTTACTACAG AAAACCAAGA AGCTGTGGCT GCAGGACAAA	780
CACTCCAACA CATTATTACA TTACCGTTTA AACATTTATT TGTATTTATT GGTGGCGGTG	840
GAGCGACTAT TGGTCTTGGC ATTTGTCTCT TCCTATTTAG TAAGAGTCGT GCGAATAAAA	900
CATTAGGTAA GCTAGCTATT ATACCGTCTA TTTTAAATAT CAATACAGCT ATTCTATTTA	960
CGTTTCCAAC AGTTTTAAAT CCGATTATGC TGATTCCGTT TATTGCTACT CCTACAATCA	1020
ATGCCCTGAT TACCTATGTA TCAATGGCTG TAGGATTAGT ACCCTATACA ACAGGTGTAA	1080
TCCTTCCGTG GACAATGCCA CCGATTATAG GAGGCTTCCT TGCAACAGGG GCTAGTTGGC	1140
GAGGAGCTCT ATTACAAGTT GTTTTGATTT TGGTTTCTGT AGCAATTTAT TATCCATTCT	1200
TCAAAATTGC AGATAAACGC AATCTTGAAA AAGAAAAAGC TACTGTTGGA GGGAAATAAG	1260
ATGGTTATCA GAGTATTTGA TCAACAGAAA AATACTTATT CTAGCTTTGC CTTAGAGGAA	1320
TTAAGTTACT ATATGAATCG GGTCTTTAAG ACTAACATAG AGCTTGTCGA GGAGAAGGAA	1380
GCGGATATTT TTGTAGGATT AGTCAATAAA GAGGACAGAA AAGACCATGT TCTTATCTCA	1440
TTAGACAAGG GTAAGGGGAG AATTGAGTCT AATACAATTG TAGGTTTACT TATTGGAATT	1500
TACCGAATGT TTCATGAATT TGGGGTTGTG TATACTAGAC CAGGGCGCAG ACATGACTTT	1560
GTCCAGACT TACGATTGTA AGATTTTTTA GATAACAGC TATCTATAGA TGAACAGCC	1620



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AGTTACTATC ATAGGGGAGT ATGTATAGAG GGAGCGGATT CATTGAAAA TATACTAGAT	1680
TTCATTGATT GGCTACCTAA GATTGGGATG AACAGTTTT TCATCCAGTT TGAAAATCCT	1740
TACTCTTTTT TGAAACGTTG GTATGAACAT GAATTTAATC CATATCTAAA TAAAGAACAA	1800
TTTTCAAATG AATTAGTACA AGAATTGAGT GATAGGTTGG ATAAAGAATT GCAAAAAAGA	1860
GGTCTTATTC ATCATCGTGT TGGTCATGGA TGGACAGGTG AAGTTTTAGG TTACTCTTCA	1920
AAATTGGCT GGAATCAGG TCTTAGTATT TCAGAGGAGA AGAAACCCTA TGTCGCTGAA	1980
ATAAACGGGA AACGAGAATT GTTTAATACG GCTCCGATTT TAACCAGCCT GGATTTTCA	2040
AATCCAGATG TAGCTGATAA GATGGTAGAA ATTATCAAGG ATTATGCCAA GAAAAGACCT	2100
GATGTAACT ACTTACATGT ATGGTTGTCG GATGCTCGTA ATAATATTG TGAATGCCAA	2160
AACGTAGAC AAGAATTGGT TTCGGATCAG TATATTCGTA TTCTCAATCA ATTGGATAGG	2220
GCTTTAACGA GTGAGGGATT AGATACAAAG ATTTGTTTTC TGCTTTATCA TGAGTTGTTA	2280
TGGGCACCTC AGAAAGAAAA ATTAGATAAT CCTGAACGCT TTACCATGAT GTTGCACCG	2340
ATTACAAGAA CATTGAAAT GAGTTATGCA GATGTAGATT TTGACAATTC CATACCTACG	2400
CCTAAACCTT ATATGCGTAA TAAAATTATA CTTCCGAATT CTCTTGAGGA AAATTTATCT	2460
TATCTTTTTG AGTGGCAAAA AGCATTAAAA GGAGATAGTT TCGTATATGA CTATCCTTTA	2520
GGGCGTGCTC ATTATGGCGA TTTAGGCTAT ATGAAAATTA GTCAAACTAT TTACAGAGAT	2580
GTATCTTATC TTTCCAACCT ACATTGAAC GGGTACATTT CGTGTCAGA ATTACGTGCC	2640
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GGCAGCCGTC AAAGTGATGT TTTAGCGAAT CATTATTATA TAGCTTACAA TCTAGCTGAT	2880
AATTTTTTAC CAATTATTGA GGAAAATATT TCTAAGTTAT TAAATAGTCA AAAGGATGAA	2940
TGGAAACAGC TCAGTTATCA TCGTGAATAT GTTGTAAAGA TGGCGAAGGC TTTATATCTT	3000
CAAGCAACTG GAAAAACAAG GCAAGCTCAA GATGAATGGA GAAATGTGTT GAATTATATC	3060
CGTGGGCACG AATTGCTATT TCAATCTAAT TTGGATGTTT ATCGTGTAAT TGAAGTAGCA	3120
AAAAATTACG CTGGTTTCCA CTTATAAATC ATAAGTATAG AAAATGAACT AAGGTATTCA	3180
GAGAAGATTG ATCCTAAATA TTATGAAATT TAAGGATTTT TAAGATATTT AGGGTCAACT	3240
TTCTATTTAT ATCGTAGCGA AGTCATTTTA ATAATGATGT GTAAAAGATG GATCAAGATT	3300
GAGGAGGAAG AAAGATGAAA TCAAAAGAAG AAATAAATAT GCTTGGTTTT ACAATTGTCG	3360

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CTTACGCAGG AGATGCAAGG TCAGATTGA TGGATGCTTT GCGGTTTGGC AGAGATGGAT	3420
ATTTTGAACA GGCAAGAGAA TTGGTTGAGT CTGCAAACGA CTCAATAGTG TCTGCCCATC	3480
GAGAACAGAC TAATTTATTA GCGGAGGAGG CATATGGAGA TAATTTTGAA GTGAGCTTTA	3540
TTATGATTCA TGGTCAAGAT ACTTTGATGA CAACGATGCT ATTGTATGAT CAGGTAAAGT	3600
TTTTTATTGA TGAATATGAA CGAATTCGAA AGATTGAAGA ACATATTGGT TTGCAATGAG	3660
GATTAGTCAT GGAAAATTTA CAGGTAAAG CTTACCAGAA GGAGTTTTTA TTAGGAACTG	3720
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GGGATGTTTA TTGCAAGAA AATAGTCCGT TCTTACCAGA TCCAGCTAGT GATTTTATT	3840
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ATTATTACCA TAGAGTTTTT CAGTCTTGCT TAAAACATAA TGTGATTCCG TTTGTTTCTT	4020
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GCTACAATAA GCGATATGGT CTTTCTTTTG TTGATTATGA AACACAGAAG AGATATATTA	5040
AGAAAAGTGC TCTTTGGGTA AAAGGGCTAA AACGGAATTA AGGTTAGCGA TTTGACTGAT	5100
GTTTAATATG TTTTAAATAT GAGGTTGAAT TTTTATAGG AGGAGTTTTA TGGATAAGCT	5160

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AGTCGCTGCC ATTGAAAAGC AACAAAGGAA ATTTGAAAAA ATTTCTACTA ATAACATATAT	5220
GATGGCTATT AAAGATGGAT TCATTGCTAC TATGCCTTTA ATTATGTTTT CAAGCTTTTT	5280
GATGATTATT ATTATGATTC CTAAAAATTT CGGAGTAGAG TTACCGAGTC CAGCTATTGT	5340
CTGGATGAGA AAAGTGATA TGTTAACCAT GGGAGTTTTG GGTATTATTG TTTCAAGGAC	5400
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GATAACTTCG TTTGTCAGTG CCTTTATTAC TGTAATGTT TACCGATTCT GTATTAAGCG	5640
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TCCAAGTAAA GCCTTACAAT TTGTATTGGA GCATTACCAA GCTGTGTAGT AAGTTTTTCC	6840
ATCTTTTATT TGAGTAAAGA TTTTGTTTAC AGATAGGCTT GGATTTAAAA ACGTTCCCCC	6900

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CTTAGACCAA GTTCTCTTCA TAAAGAGAAG GAGGATTGGG TAAATCTCCA AGCGCCCTGC	7020
AATCATTGCA AAGGATAGGA GAATTTTGA GATGGGACTA AAGATTGAGA AACTAGAAGT	7080
GGTTCCTAGA ATAGGCCCGA TATTATTGAA ACAGCTAAAG ACAGCGCTGG TCACGACCAG	7140
AAAATCATTG CTATCTAGGC TGACAATAAA GATAAGCGCT AGCAAAATCA TAGCATAGAT	7200
GACAAAGTAC TTGAGAATCT TATGCTGGGT ATCTTTGTCA ATCACCCTTT TATTAACATG	7260
GAGGGTCAAA ACACGGTGGG GCGATAGGAT TGACAAAATT TGGT'TTTTG CAAT'TTTGA	7320
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TGCCATGAGG AAAAGGAGGA TAAACTGGGA GAAGAGGGGC CAGT'TGGTAA TATCTCCATA	7440
TCCAAAACCA GTTGTTGTAA TGATGT'TGGA AACCTGGAAG AAGGTCATT' CAAAGCTCTT	7500
TGAAAACCTT GGGTAGAGGT AGAGGGTGTT GAGGCTAATC AAGCCTGTAG AAACCAGTAC	7560
AATGACCAAG TAAGCCCTAA GCTCTTCATC TCCAAAGAAG GCCT'TGATGC GACGGAGCAT	7620
GAGGTAGTAG TAGAGGTGA AATTTACTCC AAAAACCAGA ACTCCGATAC TGACCAGATA	7680
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TCCCGCTGTC CCCATAGCAA TAACAAAAC' ATCGTAGAGA GGCATACCGG CTAGATAATA	7800
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TAGGTGGCTA TTTTGGCAT TGTCCATAAT AGCAAGTGCA AAAACAAGCA CTCCCATCCC	7980
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GTTCAAAATA CTGCTCCAG TAGTTGTAAA TCCAGAATA ATTTCAAAAA AGGCATCAAT	8100
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CCAACAGAGG GCAACGATCA AGACTCCCTC CTTGGCATAA ATCCGTGTAT TTTTGGCTT	8220
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CCTCGCGATC AAGTCATAAA TCTTGGTGAT GTTTGGCAAC AAGGTTGTTA CTAGGAGCTT	8460
GTCTCCAACT TCCAACATAT CCTCCCCAGT TGGGAAAATA GTCTTGCCCT TTCGAATAAT	8520
GGCTGCAATA AGAACCCCTT TTTTCAATTT CAGTTGAGAA AGAGGTTTGG CAGTCATTTT	8580
ATTGGCTTCC TTGATATGGA ATTGCAGGGT TTCCATTTGG CCATTGGCTA GATGGTGCAT	8640
AGCTTGAAGG TCTGAATACT GGGCATTAAC TCGACCACGA ATAAAGTGCA TAATCGTATC	8700

551

TACAGCGATG CTTTtaggtg TGATGATACT TGAAAAATCA GGCGCATTGA TAATCTCGAG	8760
GAGACTGGTA CGATTGACCT TAGTAATATT TTTCTGTACA CCTACCCCTGT CAAGGAACAT	8820
AGATGTAATC AGATTTTCCT CATCGACTCC TGTTAGAGTC GCAACGGCAT CATAGTGTTC	8880
AGCACTTTCT TCCAGCAGGA TATCTTTTGC GGTTCATCT CCTTGAACGA TGTAGAGATT	8940
TGGGAATTC TCGCTAAAGA AGCTGGCGAT TTCAGGATTG ATTTCAATGA CTTTGTATC	9000
GATACGACTA TCTTGAGAA TACCAAGTAG ATAATAGGCA ATTCTACCTG CCCCAACGAT	9060
GAGAAGGCTC TTCACGGCGC GTGATTTAAA ATAATTATGG AAGAGTATCA TATCGACACG	9120
GTTACCAGTG ACAAAGATTC TATCTTTATC CTGTACAGTC ATGTCACCGC TTGGAATGAT	9180
AATTTGATGA TCCCTCTCTA TCGCACAGAC AATGACATTA CCAAATTTTT TACGAAAATC	9240
AGAAATGGGC ATTTGGCAAA GACCGCTGGT GGACTTGACG ACAAATTCCA TGAGGCTAAC	9300
GCGTCCACCA GCAAAGCGTT CGACAGACAG GCGTTGGGG AAGTCAATGA TATCGCGAT	9360
AGCGCGGGCA GCCAAGAGCT CAGGATTAAC GATAAGAGAA AAACCGAGAA TATCTTTTC	9420
CTTGAAATAA GAGTTAGAAT ATTCAGGGTT CCGCACCCGA ACGATAGTTT CTTAGCTCC	9480
CATTTCTTG GCTAGAACTG CTGCAATCAT GTTGACTTCA TCGTGCTCAG TCAGGGCGAT	9540
AAAGATATCA CAATCTTGA CGCTGGCTTG CTCAAGAATG GCAAATCGG CCCCGTTACC	9600
AAGGATACCA ATGATATCAA AGCGACTGAC AATATGATTG AGAACAGCTT CGTCTTGCTC	9660
AATCAGCAAA ACATCATGCT TTTCTGCAAC CAAGGAGCGA CAGAGGGCAA AACCAACTTT	9720
TCCCCCTCCG ACAAGGATAA TTTTCATAAT AAAACCTACT TTTTCATGAT GTAACATCA	9780
TACCCTTTTT CAAGAAAAAA TGCACCTACT AGCTAATAAC AAGAGTTTTT AGTGAAAATT	9840
CGCTATAAGG TAAAACTATA CCCTAACCAA TTGAAATAGC TATTAGCGAC TTTCTCTGAA	9900
ATATGGTATG ATAAAGGATA TACAAGGAGA TAAATGAAT AATAATTTAC TGGTATTACA	9960
ATCAGACTTT GGTCTGGTTG ATGGTGCGGT ATCGGCTATG ATTGGAGTGG CTTTAGAAGA	10020
GTCTCCAACC TTAAAAATAC ATCACTTGAC GCACGATATC ACGCCTTATA ATATTTTGA	10080
GGGGAGCTAT CGTCTCTTC AGACGGTGGA TTAAGGCTT GAGGGAACGA CGTTTGTATC	10140
GTTTGTGCGT CCAGGTGTCG GTTCGAAACG TAAGAGTGTA GTTGCCAAGA CTGCAAAAAA	10200
TCAATACATT GTCACGCCAG ATAATGGGAC GCTTTCCTTT ATCAAGAAAC ACGTTGGCAT	10260
TGTAGCCATT CGTGAGATTT CTGAGGTGGC CAATAGGCGT CAAAACACAG AGCATTCTTA	10320
TACCTTCCAC GGTGCTGATG TCTATGCCTA TACTGGTGCT AAAGTGCCA GTGGTCACAT	10380
TACTTTTGAG GAAGTAGGGC CAGAGCTCAG TGTGGAACAG ATTGTAGAGC TTCCAGTCGT	10440

552

AGCGACCATC ATAGAAGATC ATCTGGTGAA GGGAGCCATT GATATTCTGG ATGTGCGTTT	10500
CGGTTTCGCTT TGGACCTCTA TCACACGGGA AGAATTTTAC AAGCTGGAAC CAGAATTTGG	10560
TGATCGTTTT GAAGTGACCA TCTATCATGC TGATATGCTG GTCTATCAAA ATCAGGTTGT	10620
CTATGGCAAA TCATTTGCAG ATGTGAGAAAT TGGGCAACCs ATcTTTACrc TCAGCaTCTc	10680
CGATTAGCTG GGCAATTCGT TCTAGTTGGA TTTCGTCAAT CAAGGT	10726

(2) INFORMATION FOR SEQ ID NO: 67:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 7163 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 67:

TTATCTTTAA CGATATCAAT CAAGATCTGG TCAATAAAGG GATTGGGGCT TATCGTGAAG	60
TTGGCATCCA AGCCCATGGA TATGTCTGTG ACGTGACAGA CGAGGACGGT ATCCAAGCCA	120
TGGTCAAGCA AATCGAACAA GAGGTTGGTG TCATTGACAT CCTCGTTAAT AACGCTGGTA	180
TTATCCGCCG AGTTCCAATG TGCGAAATGA GCGCCGCTGA TTTCCGTAAG GTCATCGATA	240
TTGACTTAAA CGCACCATTT ATCGTTTCAA AGGCAGTTAT TCCTTCTATG ATAAAGAAAG	300
GGCATGGAAA GATTATCAAT ATTTGTTCTGA TGATGAGCGA ACTGGGACGT GAAACAGTTA	360
GCGCTTATGC TGCTGCTAAA GGGGGCTTGA AAATGTTGAC CCGCAACATT GCGTCTGAAT	420
ACGGTGGAGC CAATATCCAA TGTAACGGAA TTGGACCGGG TTATATTGCC ACTCCTCAAA	480
CAGCACCTCT TCGTGAATTG CAAGAAGATG GTTCTCGCCA CCCATTTGAC CAGTTTCATCA	540
TTGCAAAAAC ACCTGCTGCA CGTTGGGGAA AFACTGAAGA TTTGATGGGC CCTGCTGTCT	600
TTCTCGCTAG TGATGCCAGC AATTTTGTCA ATGGCCACAT CCTATATGTA GATGGCGGTA	660
TCTTAGCCTA CATCGGAAAA CAACCTGAGT AAAAATAGAA AGAAGATCTT ATGAAAATCG	720
CATTAATCAA TGAAAATAGT CAAGCTAGCA AGAATCACAT TATTTACGAT AGTCTAAAAG	780
AAGCGACAGA TAAAAAAGGC TACCAATTAT TTAACATGG TATGCCGTGA GAAGAAGGAG	840
AAAGTCAATT AACTTATGTG CAGAACGGAC TAATGGCTGC CATCCTTTTA AATACAAAGG	900
CAGTTGACTT TGTTGTTACC GGCTGTGGTA CGGCTGTAGG GGCTATGCTT GCTTTAAACA	960
GCTTCCCTGG TGTTGTCTGT GGTCTAGCAG TGGACCCAAC TGACGCTTAC CTTTATTCTC	1020
AAATCAATGG TGTAACGCC TTGTCTATCC CTTATGCCAA AGGATTTGGC TGGGGGGCAG	1080
AACTGACCCT CAAATTGATG TTTGAACGCT TATTTGCTGA AGAAATGGGC GGTGGCTACC	1140

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CAAGAGAACG TGTAATCCCT GAACAACGCA ACGCTCGTAT CTTAAACGAG GTGAAACAAA	1200
TCACCCACAA TGATTTGATG ACCATCCTTA AAATAATCGA CCAAGACTTC CTCAAAGACA	1260
CCATCTCTGG CAAATACTTC CAAGAATACT TCTTTGAAAA CTGCCAAGAT GATGAAGTTG	1320
CTGCTTATTT GAAAGAAGTA TTAGCCAAGT AAAGCTATTC TAAACCAGAA AGGAACTAAT	1380
GGATGACGAA AATATTACTG TTTGGCGAAC CATTAAATTCG AATTCACCA TTAGATGCCA	1440
CCAGTATCGG CGATCATGTT GCCAGTTCGA CTTATTTTGG CGGATCAGAA ATTAACATCG	1500
CTTGTAATTT GCAAGCCCTG GGTATCTCAA CGAAAGTTTT TACCGCACTC CCTGCCAACG	1560
AGATTGGAGA TCGTTTTCTC ACATTCTTGA AACAGCACCA AATCGATACC AGTTCAATCT	1620
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GTGAAGTTT CTACGATCGT AAGCATACGA GTATCAGCCA GATTGGGCCA AACATGCTAG	1740
ATATGGATTC TCTCTTCAG GGGATTAGCC ATTTTCATTT TAGTGAATC ACCGTAGCTA	1800
TCCGTCAAGA GGTCCGTGCG ATCCTTCTCC TACTCTTGA AGAAGCCAAG CGCCGAGGAA	1860
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CTAGTGATGA GCAAGACAAA AATGTCTATC AAGCCTATGC TCTAGAAGAA CTATTTGAAG	2160
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TTGCGAGCCG AACTCTCAA TGCCTCTTC CAGGAGACCA TCTCTCCACT TCCTCAACTA	2340
GTATTGAAAA TTTACTGGCA AATGCACAAG ATATCATTCG TTAGGAGAAT TACATGACCA	2400
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CAAAGGAAGA AGGACTACAA GCCTCGATTG CTTGTATCAA GGGCGGTATC AAAGCTATTG	2520
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CGACTGCACT TCAAGCCGGT AGTGAAATCA TCAAACCTTT CCCAGGTAGT ACTCTCAGTC	2820
CAGCATATAT CTCTGCAGTC AAGGCACCGA TCCACAAAGT TTCCGTAATG GTAACCGGAG	2880

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GAGTCGGCCT AAACAACATC CCTCAATGGT TCGCTGCTGG TGCAGATGCC GTTGAATTG	2940
GTGGCGAACT CAATAAACTC GCTTCCCAAG GCAACTTTGA CCGCATCAGC GAGATTGCCC	3000
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AGCTATAAGC CCAAATCATC AGCCAGCGCC TAAAGACGCT GGCTTTCACG TTGTTC AAGC	3120
CTTATTGCTC TTGACTCGTC ACTTGCTCT TTAAGAGACT TTGGTATTAC TTACCACTAT	3180
CCCTAAAGGG ATCCTCATAT TCTTTTACAC TCAATTTATC TAGTGCTATA GTAGATTGAA	3240
ACTGGAATAG TACACCTCTG CTTCTAAAAC ATTGTTAAAA ATCGATTGTA CTGTCCTGAT	3300
CGATTTTGTC CTGTTCTTAT TTCATTTTAC TATATATCAT ACTTTACTCG TTCTCAAATT	3360
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ATTGTGGCTT CATTAGCCCC TACTGGACTT ACATAATAAC CTTCTCCCA GAAATGCCGA	3480
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GTGCCATATT TTTTCTCCTT TCGCTTTACA ATTGGATTGA ACACCTTTAT TGTATCGCGT	3840
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TTTTAAAAGA AAAATCCGAA GATATTTGGC CTTCTTCGGA TTTTCTCTAT TTTCCACAGT	4140
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AAATGCCCCA AGTAGCAAGA ACCCTAGACT TGCCAAGATT GACTGACCTT CTCCTGTCTG	4260
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TGATTCCTGG GTTTCAGGAT TATAGTAGGC AATCTTATAT TCATCCCTT CTTTTCGAAT	4440
GGTATAGACT CCACGTTTCA AAACCTTGAA TTGGTTGGAA ATAGTAGAGA CAGAATCATC	4500
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ATTTTCGATG AGGCTACTTT CTAACCTTTT TATCATTGTA TTGAAGGTGG CACGATCCAC	4620
GTTAGGAATG AGCATATAGC CATAAGAAATC TCTATTTTGC TTATGAGCCT GACTAATCGT	4680



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AAGAAATTCA TTTTCAACTT CCTTGTCTGA CTGTCCTTCA TTGATATCCT TCCAGGCTCC	4740
CTTTTGCAAA GCCTTACTCA TACTGATTGA ACTCTTCTTA AAGAAAAAGT AACCAATATT	4800
CTTTTTCGAA TCGAACGATT CTA AAAAGAC ACTTTGGGT TCAGGATAAT CCTTTTCTTG	4860
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TAAAAAGGCG ATCTTATCCT TTAGCATAAA CCAGCTCTTA TGAGCAGTCA ATGTTTGATT	5040
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GAAAGCAGAC GGTAAAACTT TACCTGTATC GCTATCCGCT CTCTTAGCAT CCGTCTCTGT	5160
TGTACCAGGC ATCTTATATG GATTAACTGT TGGCCAGTAG CCATCGCTAT AGTGACTCAA	5220
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AAGACTCTGC AAACATTGTT TGGTTTCTCC TTCAGACATA TCCGCTATTC GGTGAATCCC	5580
TCTTAGTACT TCTACTGCGG CCACGTGCCC CTCGCTATTT GCACGACTGA TCGAGCGTCC	5640
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GTGGTACATG GTTTGCATTT TATCTTTATC GATTGGATTG TTGGTCTTTT GAATGACTGG	5760
CAACAGTTGA GACAGGCCAT CAATCAAAAC ATTCCCATAA GCACCCGTAT AGGCAACATT	5820
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CACTTGCTCA ATCGAGCGAA TGGTAGAAGA AATTTCTTGA TCATCCTTAC GCAGTAAACC	5940
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ACGAGGTGTA CCGATTTCAT AATCCCACCA GTTCCCAACA ATGCTCTTTT CACTATTGTA	6180
GACATGTTTA TGCATCCATT CCATGGAATC CCTGACTGTT CGAACGACAG TTTTATCTTG	6240
ATAATAACGA GAAGAAGGAT TGGTCACTTG CTGGCCATC TCCTCCAATT TCCGATAAGT	6300
GGCAGTCAGA TTTGCAGACC TTTTATAATT TGAAAATTTT TCCCACAAAT AGGTGCGGTC	6360
CGCCTGACTT GAAATACTGG ATAGGCTATC AGCTACCTTT CCTTCCAATT CCTGGTTTAA	6420

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TTTGGCCATC TGTTCAATTT TAGAATCATA GTATTGATTC CCAGCGATGA TGCCATTCCA      6480
GTCATCCAAA CGGTCGTGTG ATGCATCCTT AACAGAGGCC AGAATCTTCA AAGGAATCTT      5540
TTTCACTTCC TTGCCATCTT TACTGACAAT GACATTGGTT GTCCCTTCCT TAAGAGGTTT      6600
TAAAATTCCA TTTTGTACTG AAGCAACGTC AGGATTTTCT ACCTTATAAG TATAGTCCGC      6660
AAGAGAAAAA ACATGTTTTT TTCCAATTGG TAAATCAATC TTTTCCTCAA GCTGTTTATC      6720
TGTTTGAGAA TCCTCAGAAA GCTGGTCTGC TACCTCTACC AGCTCAATAT CCTTAAAGGA      6780
AACAGTCCCA GTTCTGTTT CATAGAATAA CTCCAGCTTG ATTTTATCAA CATCTAAAGT      6840
CGGGCTATAG TCTGCTTCAA TGGTCTGCCA GTCCTTTGTT CCTGACGTCG TTGCAGAATT      6900
CCACAATCGC TTGTCTTAC CACTTTCCTC AATGATACGA ACTTTGGCAA TCCCGATTTT      6960
ATTATCTGTT TTAATCTTGA AACGCAGTTT ATACTTTTTC TTAGCTTCAA TAGGAACCAT      7020
ACGGTGAAGC GCTGCCCTTA ATTTCTCATG GCTTGAGATA GTGATAGCCC CATCCTTAGC      7080
CTCAATGACT CGAGTTCAGG CATCTGCACT ATTCTTCTGG TCTACCCAAG CTGACCACCC      7140
CCTGAGCTTT GCTTCCTGTC CGG                                          7163

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## (2) INFORMATION FOR SEQ ID NO: 68:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 9244 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 68:

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CGTTATAACA TACATGTAAG CGGTACCCAA AATGGTGCCA AGTCAAAATT TTTAAGGAGG      60
AAAAATACATG TCTTCACATC CAATTCAGGT CTCTCAGAA ATTGGGAAAC TGAAAAAAGT      120
TATGTTGCAC CGTCCAGGCA AGGAGTTAGA AAACCTGTTG CCGGACTATC TTGAAAGGCT      180
TCTTTTGTAT GATATTCCTT TCTTGAAGA TGCTCAAAAA GAACATGATG CATTTGCCCA      240
AGCTCTTCGC GATGAAGGAA TTGAGGTTCT CTACCTAGAA CAACTCGCTG CTGAATCATT      300
GACCTCTCCA GAAATCCGCG ATCAATTTAT CGAGGAATAC TTAGACGAAG CCAACATCCG      360
TGATCGTCAA ACCAAGGTTG CTATTCGTGA ATTGCTTCAC GGCATCAAGG ACAACCAAGA      420
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AGCTAAAGAT CTAACGACT TAGTTGAATC AGAGTATCCA TTTGCAATTG ACCCGATGCC      540
AAACCTCTAT TCACTCGCG ACCCATTTGC AACAATTGGA AACGCCGTAT CGCTTAACCA      600
CATGTTTGCA GACACTCGTA ACCGTGAAAC ACTCTACGGT AAGTATATCT TCAAATACCA      660

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AGACGCAGCT TCTATCGAAA AACTTTTGGT CAACATCTTC AAGAAAAATG TTGGCTTCAA	840
GAAAGTTTGG GCCTTTGAAT TTGCTAACAA CCGTAAATTC ATGCACTTGG ATACTGTCTT	900
CACTATGGTA GACTATGACA AGTTCACTAT TCACCCAGAA ATCGAAGGCG ACCTTCACGT	960
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TGAACTTCTT GCTCAAAACC TTGGTGTAGA AAAAGTTCAT TTGATTCTGT GCGGTGGTGG	1080
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CTTCCTACAC TGCTTGCCAG CATTCCACGA TACTCACACT GTTTATGGTA AAGACGTTGC	2220
TGAAAAATTT GGTGTAGAAG AAATGGAAGT AACAGACGAA GTCTTCCGCA GCAAGTACGC	2280
TCGCCACTTC GATCAAGCAG AAAACCGTAT GCACACTATC AAAGCTGTTA TGGCTGCTAC	2340
ACTTGGAAC CTTTATATTC CTAAGTATA ATTTTAGATA ATAAACCGTC TACCAACAGC	2400

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AGGGATTGTTG GATGTCCTCA TGGCACCGAT TCGGGCTATG CTAGGTACTC ATCCAGAGGA	3900
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CCTCGGTGGT ACAACTTATG GTATGGGTGA AGAAACAATG GCCTTCTATC CACTCCTTGT	4140
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GACTGCTCTT AGTACTTGGT TTGTTTACCG TTATGCCGAT AAGATTCAAA AAGATCCGAC	4380
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TGATGACTTT AATACTTGGT TGACTGGTCT TCCAGTTATT GGTAATATTG TCGGTTTCATC	4620
TACTTCTGCA CTAGGTACTT GGTACTTCCC AGAAGGCGCA ATGCTCTTTG CCTTTATGGG	4680
TATCCTGATT GGTGTTATTT ATGGTCTTAA AGAAGATAAG ATTATCTCTT CCTTCATGAA	4740
TGGTGCTGCT GACTTGCTCA GTGTGTCCTT GATCGTAGCG ATTGCTCGTG GTATTCAAGT	4800
TATCATGAAC GACGGTATGA TTACCGATAC AATCCTCAAC TGGGGTAAAG AAGGCTTGAG	4860
CGGTCTATCT TCACAAGTCT TTATCGTTGT AACTTATATC TTCTATCTAC CTATGTCATT	4920
CTTGATCCCA TCTTCATCTG GTCTTGCCAG CGCAACTATG GGTATCATGG CTCCACTTGG	4980
AGAATTTGTA AATGTCCGTC CTAGCTTGAT TATCACTGCT TACCAATCTG CTTCAGGTGT	5040
CTTGAACCTG ATTGCACCAA CATCTGGTAT TGTGATGGGA GCTCTTGACAC TTGGACGTAT	5100
CAACATTGGT ACTTGGTGGA AATTCATGGG CAAACTCGTA GTCGCTATTA TTGTAGTGAC	5160
CATCGCCCTT CTTCTCCTTG GAACCTTCCT TCCATTCCTA TAAATAGTG AGTGAGGTGA	5220
TTCCATGAAA ATAGATATAA CAAATCAAGT TAAAGATGAA TTTCTTATAT CATTAAAAAC	5280
CTTGATTGCC TATCCTTCAG TACTCAATGA AGGAGAAAAA GGAACACCTT TTGGACAAGC	5340
AATCCAAGAT GTCCTAGAAA AAACCTTAGA GATTTGTCCA GACATAGGTT TCACTACCTA	5400
TCTTGACCCT AAAGGTTATT ACGGATATGC AGAAATCGGT CAGGGAGCAG AGCTTCTGGC	5460
CATTCTCTGT CATTTGGATG TTGTTCCATC AGGTGATGAA GCAGATTGGC AGACACCGCC	5520
ATTGAAGCA ACTATCAAAG ACGGCTGGGT ATTCCGACGT GGTGTCCAAG ATGATAAAGG	5580
CCCTTCGCTC GCAGCTCTCT ATGCAGTAAA AAGCTTGCTG GACCAAGGTA TTCAGTTCAA	5640
AAAGCGCGTA CGCTTTATCT TTGGTACCGA TGAGGAAACC CTCTGGCGCT GCATGGCAGC	5700
CTACAATACC ATCSAAGAAC AGGCCAGTAT GGGCTTTGCA CCTGACTCAT CTTTTCCTCT	5760
GACCTATGCT GAAAAAGGGC TTCTACAGGT CAAACTTCAT GGCCTGGAT CGGATCAACT	5820
AGAGCTTGAA GTAGGAGGCG CCTTTAACGT TGTACCAGAC AAGGCCAACT ACCAAGGTCT	5880
CCTCTATGAA CAGGTTTGTA ACGGTCTCAA AGAAGCTGGT TATGATTACC AAACCACTGA	5940

560

ACAAACCGTA	ACGGTTCTCG	GAGTGCCAAA	GCATGCTAAG	GATGCTAGTC	AAGGTATCAA	6000
TGCTGTCAATC	CGACTAGCTA	CCATTCTTGC	TCCTCTCCAA	GAACACCCCTG	CTCTCAGTTT	6060
TCTTGCAACA	CAAGCAGGTC	AAGACGGCAC	AGGAAGACAA	ATCTTTGGTG	ATATAGCAGA	6120
TGAACCTTCT	GGTCACCTAT	CCTTTAATGT	CGCAGGTCTC	ATGATCAATC	ATGAACGTTT	6180
TGAAATCCGT	ATTGACATTG	GGACTCCTGT	CTTAGCTGAC	AAGGAAGAAC	TAGTAGAGTT	6240
GCTTACAAGA	TGTGCACAAA	ACTACCAACT	CCGCTACGAA	GAGTTTGACT	ATCTAGCGCC	6300
TCTATACGTC	GCAGAAGACA	GTAAACTCGT	TAGCACACTG	ATGCAAATCT	ACCAAGAAAA	6360
GACTGGCGAT	AACAGTCCTG	CTATTTTATC	CGGTGGTGCC	ACTTTTGCTC	GCACCATGCC	6420
AAATTGTGTA	GCCTTCGGCG	CCTTATTTCC	AGGAGCGAAG	CAGACAGAAC	ATCAGGCAAA	6480
TGAATGTGCC	GTTCTAGAAG	ATTGTACCG	TGCTATGGAT	ATTTATGCCG	AAGCCGTCTA	6540
TCGACTTGCA	ACTTAATCAG	GCAACTGTTT	CTACCAAAAA	AAATCGACCG	ATTAATGAAC	6600
TGCACCCCAA	AAGTTAGACA	GAATAAATCT	AACTTTTGGG	GTGTTTTATT	ATGAAATTGA	6660
GTTATGAAGA	TAAAGTTCAG	ATCTATGAAC	TAAGAAAGCA	AGGACAAAGC	TTCAAACAGC	6720
TTTCAAAAAG	ATTTGGTGTG	GATGTTTCTG	GTCTAAAGTC	ATCTGAATCT	TTGAGATGAG	6780
CTTTATAAAT	CGCTTTTTTC	AGTTTTTGCA	CTGGTGTTTC	GATAAACTCA	AACTTTTTAG	6840
CCGTGGTATT	GCCTGATTTT	ATAGTATATT	GAAACTAGAA	TAGTACACCT	CTCCTTCTAA	6900
AACATTTTTA	GAAATCGATT	TGACTGTCTT	GATCGATTTG	TCCTGTTCTT	ATTTTCATTT	6960
ACTATATTTG	AGCCACTTCG	TCTTTAACGG	CTTTATTCAT	AAGCTCTTGT	AATTTTTCTT	7020
TACTATCAAT	TACTTCTGAT	TTTCCGTTGT	AATTTATTGT	AATAGGTTTT	AACTTACCTA	7080
ATTTCTCGAC	ACGCTCATTA	ATTTGATCTT	TTTTGAAGGC	TGCTTATGTT	TTTCCCTAAGA	7140
TTTTTTCAAA	AATATAATTA	TCAGATAGCG	GTTTGCTCTC	TTCTTCAGCT	TGGTTTTTGT	7200
ATTAATTTGA	AACATAAGGA	ACAAATCCTT	CATAGTAACC	TAATGCTCCC	ATAAGTTCAA	7260
AAGCTTGTTT	TCTAATTCAA	ACCATTGCAA	CTCAGATTTT	AGCTTTTCAG	ATAAATCCTG	7320
CTCATCCAAA	TAATGACTTG	AAATTAGTGC	TGAACCTCGT	TCTGTATCCT	GTACAGGCTG	7380
AGCACCCATA	CCAGCAAAAA	ATAAACTCGT	TCCTAGCAAG	ACCGAACAAG	CTCCTATTGC	7440
ATATGGCCTC	AAAGAAAAAC	GCTGCTTTCT	CTCAAATTGA	AATTCTTTCA	TCCCATCTCC	7500
CATCATTCAT	TATTACTGTA	TATTTTGAT	ATCAGAAATA	GTTTGATTC	ACAAATCTTT	7560
CTAGTTATTC	CCTTATCAT	CCTAATTAAG	GGAGATAACA	TACAATAATT	TTTAGTTAAA	7620
TGTATATCGA	TGTTTTTTGT	TTTTCTTAAT	AAACGCAATA	CAAAAAGAGC	CTGTTACCAA	7680
GCTCTTTGTA	CTCAATGAAA	ATCAAAGAGC	AAATTAGGAA	ACTAGCCACA	GGTTGCTCAA	7740

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AACACCGTTT TGAGGTTGCA GATAGAACTG ACGAAgTCAG CTCAAAACAC TGTTTTGAGG	7800
TTGCAGATAG AACTGACGAA GTCAGTAACA TCTATACGGC AAGGCGACGC TGACGTGGTT	7860
TGAAGAGATT TTCGAAGAGT ATTAGTCTAT TATTTCTTCT CAGCGCGAAG GGCTGACAAG	7920
ATTTGTGTTT GGATATCATC CACACCATTT GGAGTATTTG GTAAAAAGAT AGTTTGATTT	7980
CCTTTAGAGG CAAAGGTATT CAAGGTATCC AAATACTGGT TGGTCAAGAG GATAGACATG	8040
ATTTGTCTTT CTGTCATGCC AACATTGGCT TCCTTGAGTT CGGTGATAGA CTCTGCCAAT	8100
CCATCCACAA TCGCCTTACG TTGTTGGGCA ATCCCCACAC CATGAAGGCG GTCTTTTTCT	8160
GCTTCTGCTT CAGCTGCAGT GACAATTTTA ATCTTGTCAG CTCCCGCCAA TTCTTGTCCT	8220
CGGACCCGCT TACGTTGCGC CGCATTGATT TCATTTCATGG ATTGCTTAAC TTCTGCATCT	8280
GGTTCGACCT TGGTAATCAA GGTTTTCACG ATAATGTAGC CGTAAGTGGT CATTTCTTCT	8340
GCTACTTGGT GTTGAACCTC AAGGGCAATC TCATCTTTTT TCTCAAACAA TTCATCCAAG	8400
GTTAATTTTG GAACAGAAGA GCGAAGAGCA TCTTCGATAT AAGATTTAAT CTGAGATTCT	8460
GGACGTATGA GTTTATAGTA AGCATCTGTC ACGCTCTGCT CGTTGACACG GACTGAGTC	8520
GCTACATTCA TCATAACGAA CACATTGTCC TTGGTCTTAG TCTCAACCAC AATATCACTT	8580
TGCAACAAGC GCAACTGAAT CCGTGCTGCA ATCGAGTCAA TCCCAAAAGG CAAGCGAATA	8640
TGAATACCGC TATTAGCAAC CTTTGGTAT TTCCCAAAGC GTTCAATAAT CGCCACCGAC	8700
TGCTGACGAA CCACATAAAC TGTACTCAGT GTGACTATCA CCAATAGGAG CACACAAACA	8760
ATCAGAAAAA TCATGAAAAA TATTGCCATA ATGGAACCTC CACAAGTATT TTTCTAGTAT	8820
TATAGCACAT TTAAAGAAGG CTGTGCCGTT TTTACTGCGA TTTTCTCTGA AATGTCAATA	8880
ATTAGAGCTG AATTGTCTTA TTGTCGTCCA ATCTCTTGCT AAAATAACTC TTTATAAAAC	8940
GCAATCGTTT CTTCTAAGGT TGGCATAAAT GGATTTCTCT GTGCCGAGGC ATCAATCAAG	9000
GCATCTTAG AAAGGTATTC AAAGTCGAAA TCTTTTCTT CAATACCAAG TTCAGTCAGT	9060
TTCTTAGGAA TACCTACTGT CTCAGAAAGC TTCTCAATCT CAGCAATCGC ATAATCGGCA	9120
CATTCTTGAT CTGATTTACC TTCTACATGA AGTCCCAAGG CTTTGGAAC ATTGCGGAAA	9180
GCTTCTGGTA CACGTTTAGC ATTTTCACGT TCTATAACTG GTAGCAACAT GGCACAGCAC	9240
ACGG	9244

(2) INFORMATION FOR SEQ ID NO: 69:

- (1) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 8898 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double

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(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 69:

GATCTGAACT TTATCATCAT AACTTAATTT CATAATAAAA ACACCCCAAA AGTTAGATTT	60
TTTCTGTCTA ACTTTTGGGG TGTAGTTCAG TCATTGGACT GACGTTTTTT TGTATGCTTA	120
TTTGTATTTG ATGTAGTTGA TACCATCTGC TTTTGGTGCG ACTGCTTTTC CAAAGAAGGC	180
TGCTAAGACA AGAATTGTCA AAACATAAGG TGCAATTTGA AGATAAACCG CTGGCACTCC	240
TTGTAGGAAC GGCAATTGAG AACCGATAAC AGCCAAACTT TGTGAAAGTC CAAAGAAGAG	300
ACTAGAAAGC ATAGCACCGA TTGGATTCCA TTCCCAAAG ATCATCGCAG CAAGGGCGAT	360
AAATCCAGGT CCAACAATAG TTGTCACTGA GAAGTTAACT GAGATTGATT GCGCATAAAT	420
CGCTCCGCCA ATTCCACCTA GAAAACCTGA AATAATAACC CCTAAATATC TCATCTTGTA	480
GACGTGATT CCCAAGGTAT CCGCTGCTTG AGGATGTTCA CCCACAGAGC GGAGACGAAG	540
ACCAAATTGA GTCTTAAAGA GAATAAACCA AGCAAGGAAT GAGAAGGCAA TCGCCAGATA	600
ACCAAGTAGA CTAGTTGACT TGAAGAAGAT ATCACCATC ACTGGGATAT TTGCCAAGAC	660
TGGGAAATCA AAGCGTCCAA AAGTTTGACT TAGGTTGTCC GTTTGTCTTT TGTTATAAAG	720
AACTTTAACT AAGAAAACAG CCAAGGCAGG CGCCATCAAG TTCAATACCG TACCGCTGAC	780
AACATGGTCT GCACGGAAAT GAACCGTCCG TGCTGCCGTG ATGATAGAGA AAACACTACC	840
AACCAATCCT GCTACAAGCA AGGATAGCCA TGGAGTTGCT GCTCCAAATT GTTCTGCAAA	900
TTCAAGGTTA AAGACAACTC CAGAAAAGGC ACCCATAACC ATAATTCCTT CAAGGCCAAC	960
GTTTACCACA CCACCACGTT CAGAGAAAAC ACCACCGATA CTTGTAAAGA TGAGAGGTGC	1020
TGASTAAATC AGCATAGAAG ACACCAAGAG GGGGAGCAAG GTTATAATAG ACATCTTTAC	1080
TTACCTCCTT TAACTTGTTT TTTCGGTTTG ACAAAGCGTT CGATAAGGTA ATGAACACTG	1140
ACAAAGAAGA TAATAGACGC TGTTACAATG CTGACAAGCT CAGATGGTAC CTGCGCCGCA	1200
TTCATACCAG GAGCCCCAAC TTGGAGAACG CCAAATAGGA AGGCTGCAAA GAGTATACCA	1260
ATTGGTGAGT TGGCCGCAAG CAAACTAACC GCCATTCCGT TAAATCCGAT AGCTAATGAC	1320
GAACCTTGAA CATAGACGTT CTGGAAGGTT CCCAAACCTT CAACAGCTCC ACCAAGACCT	1380
GCCAAGGCAC CTGAAATAAT CATAGATAGG ATAATAGTCC GCTTGGCAGA AATACCAGCA	1440
TATTCTGAAG CATGTGGATT AAGACCAACT GCACGGATT CAAAACCAAG AGTTGTTTTT	1500
TTGAGCATGA ACCAAATAAC TGCAACGGCA ATGATGGCAA AGAAAATACC AATATTCATC	1560
CGTGAGTTAC CAGTCAACTC AGCCAACCAA GGTGTCTGAT AGGTTGCATT AGCCCCAACA	1620



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CGAATGGTCG AATCTGTACT TTGCATGAAG TCTTTAGGGA AAGCATGGAT AAAGGCATTG	1680
CCTACATACA AGACAATGTA GTTCATCATG ATGGTTACAA TAACCTCTGA CGTCCCTAGA	1740
TAGGCCCTAA GAATACCTGG AATCGCTCCG ACAATCCCAC CAGCAATCAA GGCAATCAGG	1800
ATGGTTGCTA GAATCATCAA GGGACGGGGC ATATCTGGAT GCGACAGGGC AAACCAACCA	1860
CTGAGAATCC AACCTGCCAA AGCCTGACCA GGAAGTCCGA CGTTAAAGAA ACCAGCTCGA	1920
CTGGCAACGG CAAAACCAAG ACCAATCAAG ACCAGAGGAC CCATAGCAGG GAAGATTTCT	1980
CCAATCCCAC GCAGACTGCC AAAGGCTGTA TAGAACAATT CTTCGTAGCC CCAAATAGCA	2040
TCATAACCGA AGATCCACAT GACAATGGCT CCGAGTAAAA TTCCTAGGAA TACAGAAATC	2100
AAGGGAACCG AAATTTGTTG TAATTTTTTA GACATCACTC TTCTCCTTTC CCAAGTTTCC	2160
ACCAGCCATC AAGACACCAA GTTCTTGTTT ATTGGTTGTT TCTGGTGATA CAATACCTTG	2220
AATCTTACCA TCGTGGATAA CGGCAATACG GTCTGAGACG TTTAAATCT CATCCAATTC	2280
AAAGCTGACA ACAAGGACAG CCTTGCCATT ATCACGCTCT TCAATCAAGC GTTTGTGGAT	2340
ATACTCAATG GCACCGACAT CCAACCCACG AGTTGGCTGG CTAACGATAA GGAGATCAGG	2400
ATCTCGATCA ATTTACAGAG CAATAATTGC TTTTGTGTA TTTCCTCTG AGAGTGCAGC	2460
TGCAGGAAC TTTCACTGG CAGCGGAAC ATCAAATCT TCCATCAGCT TTTTAGCATA	2520
AGAAGTAATA TTTGAATAAT TCAAAATTC ATTTTACTA TGTGGTTCTT TATAGTAGGT	2580
TTGAAGGGCA ATATTTTCAG ATATCATCAT TTCCAAAATC AAGCCATCAC GGTGACGGTC	2640
TTCTGGAACG TGCCCAACAC TTAGTTCTGT AATCTGACGT GGGTGCAAGC CTACAATTGA	2700
ATCTCCTTTT AGCTCAATGC TACCAGATTC AACCTTACGA AGACCTGTAA TGGCTTGAAT	2760
CAGTTCAGAC TGACCATTTT CATCAATCCC CGCAATACCA ACAATCTCTC CAGCACGAAC	2820
ATCCAAGGAC AGATTTTTAA CAGCTGGAAC ACCACGGTTT TCATTGACCA CCAATCTTT	2880
GATAGACAAA ACCACTTCTT TTGGTTTAGA GGCTTGCTTC TCTGTTTTAA AGGAAACAGA	2940
ACGTCCTACC ATCATTTCCG CCAAATCAGC ATTGGTAGCC CCTGCAATTT CAACGGTTTC	3000
AATTGATTTT CCACGACGGA TAACTGTAAC ACGGTCAGAA ACTGCTCGAA TTTATCCAA	3060
TTTGTGGGTA ATCAAGATAA TTGATTTTCC TTCTTTGACA AGATTTTCA TAATAGCCAT	3120
CAACTCATCA ATTTCTGATG GAGTCAAAAC AGCCGTTGGT TCGTCAAAGA TAAGGATATC	3180
AGCCCCCGA TAAAGTGTTC TTAATTTTC TACACGTTGT TGGGCTCCAA CTGAGATATC	3240
TGCTACCTTG GCAGAAGGGT CAACAGCTAA GCCATAACGT TCAGAAAGAG CCTTGATTTT	3300
TTTGCTAGCT CCAGCGATAT CTAGCACACC ATTTTITAGT AATTCATCTAC CTAATATGAT	3360

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GTTTTCAAGCC ACTGTGAAGG CTTCAACCAA CATAAAGTGC TGGTGAACCA TCCCGATTCC	3420
CAAGCTAGCT GCTTTAGATG GGGAGTCGAG ATTGACAACCT TGACCGTTGA CCGCGATTTC	3480
ACCACTAGTT GGTTCAGAA GGCCTGCTAA CATGTTTCATT AGCGTGGACT TACCAGCCCC	3540
ATTTTCTCCT AAAAGTGCAT GAATTTTACC TTTTCGTAGG TGCAAGTTGA TTTTGTCTGT	3600
GGCAACAAAT CCACCAACA CCTTGGTAAT ATCAGGCATC TCAATGACAT TTTCTGTGTC	3660
CATGTGCTCT TCCTTTCAGA GTCTTATTTT ATTTCATAA AACTTGCTAG TTTGTCTAGT	3720
AGCAAGCTTT ACTTAGACAA AATGACTTTG TCTCAACTCT TAAAAAGCG GCCCTTGGCC	3780
GCTTCCTAAG AAATGACTTC CATCCATTAT TTTTCAGGAA CTMTTACGCT TCCATCAAGG	3840
ATTTTAGCTT TTGCATCTC GACAGCTTTT TTACCTTCTT CTGAAAGGT TGTACTGCC	3900
AAGTCAACCC CTTTATCCTT CAATGAGTAA ACGATCACTT GACCGCCAGG GAATTCTCCT	3960
CTTTCTGCCT TGTTAGAAAT ATCTTTTACA GTTGTACCAA CTGTTTCAA AGTAGATACA	4020
AGAACAAAGT TTGATTCTTT GCCATCTTTA GAAGTGTATT TACCTTCTGC TTCTTGCTCA	4080
CGATCAACAC CGATAACCCA AACTTTTTCA TTTTCAGGAC GGCTTTCGTT GAGAGATTTT	4140
GCCTCTGCAA AGACACCTGC ACCTGTACCA CCAGTACTT GGTAAACAAT ATCTGCACCG	4200
GCTGCGTATT GTGCGGCTGC AATTGTTTTA CCTTTAGCCG CATCACCAA TGAACCAGCG	4260
TAGTCAACTT GGACTTTGAT AGATGGGTCT ACTGACGCAA CACCAGCCTT GAATCCTGCT	4320
TCAAAACGAG AGATAACTTC AGATTCGATA CCACCTACAA AACCAACTTG TTTTGTCTTA	4380
GTGTTTTTTG CTGCAGCCAC ACCTGCAAGG TAACCTGACT CATTATCAGC GAAAGTTACG	4440
CTCGCAACAT TCTTTTGCTC TTTAATCACA TCATCAATCA AGACATAGT CAAGTCAGTG	4500
TGTTCTTTTG CTGCATCTTT AACTGCATTA TTAAGGGCAA AACCAACACC GAAGATTAGG	4560
TTGTAACCTC CAGCCGCTTG TTGCAAGTTG TTAGCGTAGT CAGCTTCAGT TTTTGATTGG	4620
AAGTAAGTGA AACCGTTATC TTTTGAAAGA TTGTGTTCTT TACCCCAAGC CTGCAAACCT	4680
TCCCAAGCTG ATTGGTTGAA TGATTTGTCA TCAACACCAC CAGTATCAGT GACGATTGCT	4740
GCTTTTGTCT TCACATCAGA AGATGAAGCT GCGTTACGAG AAGAGCGGTT ACCACATGCA	4800
GCAAGTCCAA CTGCTGCCAC TGCAACTAGG CCAAGACCTA GCCATTGTTT CTTGTTTCATT	4860
ACTGAACCTC CTAAATAAGA TGTGCAACGA TGTTGCAAGT ATGGATTGGT TGGCCACAAG	4920
GACCGTGCCA CTCAGAGAGC GACTCAGACT AGTTTAAGTC TGTAAGAGAG TATGGAAGTA	4980
ATTCCCCGAC CGTCATCTCG ACCGTCGATT TATCTTTTGC GACTAAGGTC ACTTTTAGAT	5040
CTTGTTCAAA AAATTCAGCC ATCACTTGGC GACAAGCACC ACATGGCGAG ATCGGTTTTT	5100
CAGTTTGACC ATAGACAATC AATTCTGAAA ATTCTCTTTG GCCTTCAGAT ATAGCCTTAA	5160

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AAATAGCTGT TCTCTCACCG CAATTGGTCA AAGGATAGCT AGCATTTTCA ATATTCACCTC	5220
CCGTGTAAAC ACTTCCGTCT TTAGCTACTA AAAGTCTCC GATAGGAAAG TGAGAATAGG	5280
GGACATAGGC ATGTTTGCTG GTTTC AATTG CCAGTTCAAT CAACTCAGTA GTCGCCATCT	5340
GCCAATTCTC CTTTTAAAT AGCTACCCCA GCTGACGTTG CGATACGGGT CGCACCTGCT	5400
TGGACAAAGG CAAGAGCATC TGCATAAGAA CGAGCTCCAC CGGCGGCCTT GACACCCATA	5460
TCAGATCCAA CTGTTTCACG CATTAAATGTA ACATCTGCTA TCGTAGCACC ACCAGTTGAA	5520
AAGCCAGTAG ATGTTTGTGAC AAAGTCAGCC CCAGCTTTTT GGGCCAATTG GCAAACAACA	5580
ACTTTTCTTT GGTCTGTCAG AAGGCAAGCT TCAATAATGA CTTTCACATA CTTATCACCA	5640
CTTGCTTCCA CTACTGCGG AATATCTGAC TCAACCAAGG CTAAATTACC TGATTGAGA	5700
GCTCCAACAT TGATCACCAT ATCAATCTCA TCTGCACCAT TTTGGATAGC TTTCTTTGTC	5760
TCAAATGCTT TCACGGCTGA AGTTGTTGCT CCCAAAGGGA AACCTACTAC TGTGCAAACC	5820
TTAACATCTG TGCCTTCAAG TCCTTTTTTA GCATGTTCAA CCCAGGTCGG ATTAACGCAA	5880
ACACTGGCAA AGTCATACTC TCTAGCCTCA GACAACAAAC TATCAATTG TTTTTCTTT	5940
GCATCTTGTT TTAAGAGCGT ATGATCTATA TATTTATTTA ATTTCAATTC GGTTTCCCT	6000
CCATTTAGGA GATGATTTCT ACAATTCAC GGATTTTTTT CACTTCATCA CTTATTTTAA	6060
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CAACAATTTT ACCCTTTTGA ACGGAGTCTC CAATCTTCTT TTCAAAAACA ATTCCTGTTT	6180
CATAGTCCAA GGCATCAGAC TTAAGTGCAC GACCAGCACC CAGCCTCATG GCATAAGAC	6240
CAAAGTCCAT AGCTGGAAGA GCTGAAATGA CACCCGTTTC CTGAGCAGGG ATTTCCACCA	6300
CATGAGCTAC ATTTACAGGA CGATAGAGGT CTTCCAAGTC TCCACCTTGG GCTTGACCA	6360
TTTCCTCAAA CTTAGCCAGT GCTTGACCAT TCTCAAGATG TTGGTGAAT TCTTCAACAG	6420
TTTTGTAAAC ATTTGCCAAA CCAAGCATAA TTTGAGCCAA TTCACAAATA AAGTGGGTAA	6480
TATCTGACG TCCTTGACCT TGCAAAATCT CCAATGCTTC AAGGATTTCC AGACGATTTT	6540
CAATCGCTCG TCCCAAAGGC TGGTCATAT CCGTAATCAC TGCTACTGTC TTCCGTCCAA	6600
CAACCTTACC AAGATCTACC ATAGTTTGAG CCAACTCACG CGCCTCATCA ACCGCTTCA	6660
TGAAGGCACC CTCACCGACA GTCACGTCTA GCAAAATAGC ATCCGCCCCC GCCGCAATTT	6720
TCTTGCTCAT CACCGAATC GCAATCAAAG GAATCGTGTC GACAGTTGCG GTCACATCAC	6780
GAAGGGCATA GAGAAGCTTA TCTGCTTTGA CCAGCTGGTC TGATTGCCCA ATGACAGATA	6840
CTCCAATATC CTGAACCTGA CGAATAAAAT CCTCTTGACT ACGTTCTACT TGATAGCCCT	6900

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TAATGGACTC	CAATTTATCA	ATTGTTCCGC	CTGTATGGCC	AAGACCACGA	CCACTCATTT	6960
TTGCTACAGG	CACACCGAAG	CTAGCAACAA	GAGGAGCTAA	AATCAAGGTT	ACCTTATCGC	7020
CGACACCACC	AGTAGAATGC	TTGTCAACTT	TCACACCATC	AATGGCTGAC	AGGTCAAACCT	7080
CTTGCCCGAGT	CTTAACCATA	TTCATCGTTA	AATCAGAGAT	TTCTCGAGTC	GTCAATTCCTT	7140
TAAAATAAAC	AGCCATAGCA	AAGGCAGACA	TCTGATAATC	AGGAACAGTT	CCTGATACAT	7200
AGCCTTCTAT	CAGCCATTCA	ATTTCACTTG	AAGTCAGTTC	TTGACCGTCT	CGTTTTTTTT	7260
GGATTAAATC	AACTGCTCTC	ATTCTTTCAC	ACTTCTAAGG	ATATAGTATC	CCTTGCTCTT	7320
TTTAAGGATT	TCACAATTGC	CAACACATC	TTCCATCTTA	GACTTGGCAC	TTGGAGCTCC	7380
TTGTTTTTTC	TGGATGACGA	TGGTCAAATC	TCCACCAATT	TCCAAGAAAT	CTTTACTTTT	7440
CTCGATGATT	TCATGAACGA	CTTGCTTGCC	CGCACGGATA	GGAGGATTGG	AAATGACATG	7500
GTCAAATCGC	CCTTGAATC	TTGCATAAAT	ATTAGATTGA	AATATCGTCG	CTTTTGCATT	7560
ATTTTTTTCA	GCATTTCTCT	GAGCTAAATC	CAGGGCACGA	GTGTTAATAT	CAACCATGGT	7620
CGCCTGAACT	CCGTAAACCT	TGACCAAGGA	CAACCTAAT	GGACCATAAC	CACAGCCTAC	7680
ATCTAGGACT	GTCTCTCCTT	GGTTGACATC	CAGACACTTG	AGCAAGAGTT	GACTTCCAAA	7740
GTCAACCATT	TTCTTGCTAA	AAACACCCGC	ATCTGTCAAA	AAAGTCATTT	TTTCTCCCAA	7800
CAAGTCCACT	CTCAACTCAT	GAATGTCGTG	AGCAGCGTCA	GGATTTTCTG	CATAGTACAT	7860
TTTACTCATG	ACACTATTTT	ACCATAATTT	GACTCAAATT	GTAAATCGTT	TACAAATTGA	7920
TAATAAAACG	AAAAAGACCG	AAGAAAGCAA	GTACGAAGC	CATTTTCTTC	AATCTCTTTC	7980
AACACTTATA	AATAATAAAC	CATTTAGAAC	TATAAATATC	ACAGTCCAGA	TAAAAACAAA	8040
AAGTTTATCA	TCTATAATCA	GGCAGATTAT	TATTTCTATT	GCTTAACCTT	AAAATACTTT	8100
ATTATCAACA	AAATTCCTAA	CAAAATGTTT	AGATAAAAAGC	CCAACTGATA	CGTTTATGTC	8160
AGGATTTCCA	AACTTGTTCA	AAGTCGTATC	AAATCTTCTA	GTGACATGTG	GAAGAAATAA	8220
CCCTCTGTCTG	CAATCCGTAG	GACTAAAAAG	CAATAACTAC	CCGCAGCAAT	CCATTTCGTCT	8280
CATCGTTTTT	TAGTAAGAAA	GCAATTAAGA	ACGAACAAAT	AAAGACAGCT	GTTACAATAG	8340
CATGTTCCAT	CAAAAAAGTA	AAACCGTAAT	AGGTTTCCAC	AAAGCATCTA	CCATTATCTG	8400
CATTGGTTCC	TTTTATAAAA	GGTAAAGCAA	AACTTAAAT	AAAACAGAGT	TCCAATATGT	8460
AACGTTTTAA	GATTTTCATA	GTACACCTCC	TATAAGTTGT	GAACTAAAAA	GCCCCCTTTA	8520
TAAGCTTATA	AATCAGTAGA	ATCTATCTCC	TATTTATCA	ATAAATTGAT	CACCTTATACT	8580
ATATACCATT	GACTTACCAC	ATTCAAGAAA	CCGCTTTATT	TTTTTAGCTT	TTTATGGTAT	8640
GATAGACAAA	ATATCTAGGG	GAAAACAAAT	GACCAACGAA	TTTTTACATT	TTGAAAAAAT	8700

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CAGCCGCCAG ACTTGGCAAT CTTTACATCG AAAGACAACA CCTCCTTTGA CAGAAGAAGA	8760
ATTGGAATCT ATCAAGAGTT TTAATGACCA AATCAGTCTC CAAGACGTTA CAGATATCTA	8820
TCTCCCCTTG GCTCATTGA TTCAGATTTA CAAGCGAACT AAGGAAGATT TAGCCTTTTC	8880
AAAAGGAATT TTCCTCCA	8898

## (2) INFORMATION FOR SEQ ID NO: 70:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 13188 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 70:

TATCTTAACG aGGATTGGGT TTATCGTCAG TCTTATTGCC CTAATTGTGG GAACAATCCC	60
TTAAATCATT TTGAAAATAA TCGGCCTGTA GCAGATTTT ACTGTAATCA TTGTAGTGAG	120
GAGTTTGAAC TAAAGAGCAA AAAAGGAAAT TTTTCATCAA CAATCAATGA TGGTGCCTAT	180
GCAACGATGA TGAAGCGTGT GCAGGCAGAT AATAATCCTA ATTTCTTTT TTAACTTAC	240
ACAAAAAATT TTGAGGTAAA TAACTTCTT GTCCTTCCGA AGCAATTTGT TACACCGAAA	300
TCGATTATTC AAAGAAAACC ACTTGCACCA ACTGCTAGAC GAGCAGGTTG GATTGGTTGT	360
AACATTGATT TATCACAAGT ACCTTCTAAA GGAAGGATAT TTCTTGTGCA AGATGGACAA	420
GTTAGAGATC CAGAAAAAGT TACAAAAGAA TTTAAGCAAG GTTTATTTT AAGGAAGAGC	480
TCTCTGTCAT CAAGAGGTTG GACAATAGAA ATTCTAAATT GTATAGATAA GATAGAGGT	540
TCAGAATTTA CCCTTGAAGA TATGTATCGT TTTGAAAGTG ACCTAAAAA TATCTTTGTT	600
AAGAACAATC ATATCAAAGA AAAGATTAGG CAACAGCTTC AAATATTAAG AGACAAAGAA	660
ATAATAGAAT TTAAAGGTAG AGGAAAGTAT CGGAAATTAT GAAAACGAAA CAACTTGTG	720
CATCAGAAGA GGTGTATGAT TTCTTAAAAG TCATCTGGCC TGATTATGAA ACTGAAAGCC	780
GTTACGATAA CCTAAGTTTA ATCGTCTGTA CTTATCAGA TCCCGATTGT GTGAGATCGT	840
TATCTGAAAA TATGAAATTT GGTGACGAAA AACAACTAGC TTTGATGAAG GAAAAATATG	900
GGTGGGAAGT AGGAGATAAA TTGCCAGACT GGCTACATAG CTCCTATCAT AGATTATTGT	960
TAATAGGTGA ATTATTGGAA AGCAATCTAA AACTGAAAA GTATACAGTA GAAATTACAG	1020
AACTTTATC ACGTTTAGTA AGTATAGAGG CTGAAAAATCC AGATGAAGCC GAACGACTTG	1080
TAAGAGAAAA GTATAAGAGT TGTGAAATTG TTCTTGATGC AGATGATTTT CAGGACTATG	1140

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ACACTAGCAT ATATGAATAG GTAGATGTTT TTATTTTGTC AACAAAAAAG AGGCTCGCAC	1200
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GGCTACGACG ATTCGGTTTG AGAAGAACAT TTGGAAGGCT GTCGGCATGC TGACAAAGAG	1320
ATTACTGTTG TTGAGACCGA CACCTGCAGC GATTGAAACA GCTGCGATAA GGAAGTTGTG	1380
TTCATTGTTA GCAAAGTCAA CACGGGCGAG GATTTGCATC CTTGAATTG ATACAAAACC	1440
AAACATTACC AGCATGGCAC CACCGAGGAC GGAGCTTGA ATGATTGGG CAAGGGCGCC	1500
AACTTAGGA AGCAGTCCAA GGAGAACCAG GAAACCAGCT GCGTAGTAGA TTGGCAGGCG	1560
TTTTTTGATG CCGTACAATT TAACCAAACC AACGTTTTGT GAAAATCCGG TGTAAGGGAA	1620
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GCGCGTGCTG TCGATTGGAT CTTTGTGAT ATCAGACAAG GCCAGATAAA CACCAGTTGA	1740
CTCAACCATA GACACCGTTG CGATGATACA CATCATGACA ATAGATGAGA TTTCAAAGGT	1800
TGGCATCCCA AAGTAGAGTG GAGTTGGGAC ATGGACAAGT GGAGCTACCG CAACAGGAGA	1860
GAAGTCCACC AAGCCCATAG TAGCAGCAAT GGCAGTTCCA ACAACCAGAC CAATCAAAAT	1920
AGAGATAGAC TTGATAAATC CTTTGGTAAA GATGTTGATC AAGAGGATAA TCAGAACAGT	1980
AATAGCTGCA AGCAAGAGAC TTTGACCAGT TGGCTCTGGA ACGTTATTTT CCATATTTCC	2040
AATAGCGACA GGGATCAAGG TTAAACCAAT CGTGGTAATA ACAGATCCTG TTACGATAGA	2100
TGGGAAGAGA TTGGCTACTT TTGAGAAGAT GCCTGAAACA AGAACCACGT AAATCCCAGA	2160
TGCGATAAGG GCACCAAACA TAGCGCCACT ACCATGGCTT TGCCCAATCA TAATCAAGGG	2220
AGCGACCGAC TGGAATGCAA CTCCAAGAAC GACTGGGAGT CCAATCCCAA AGTATTTGTT	2280
GAGTTGGAGT TGGAGGAAGG TTGCCACCCC ACACATGAAG ATATCTGTAG AAATCAGGTA	2340
GGTCAACTGC TCAGCTGAAT AGCCAAGGSC TGTGCAATC ATGATGGGAA CCAGGATAGA	2400
TCCTGAGTAC ATGGCTAGTA AGTGCTGCAA GCCAAGAACG GCTGCTTGGC AGTGTTTTTC	2460
TTGAGTTTGC ATTAGAGATC TGCCTCCTTA AATACGACTT GACCATTTTC AAAACAATCC	2520
AAACGAGCAA GTGATAGGAC AGGGTAGCCT GCTTTTTCAA GCAAATCACG ACCATCTTGG	2580
AAGGATTTCT CAATCACGAT ACCGATAGCT TCGACTGTGG CACCGGCTG TTCGATGATT	2640
TGAATCAAGC CTTTAGCAGC TTGGCCATTA GCAAGGAAAT CGTCGATAAT CAAAACCTTG	2700
TCCTCTGGTG AGAGGAATTT TTCAGCGATA GAAACGGTGC TGGTCACCTG CTTGGTAAAG	2760
GAGTAGACTT GAGCAGTTAA GATGCCTTCG TTCATGGTGA TGTCTTAGC TTTTGGCG	2820
AAAATCATGG GAACGTTTAA GGCTTCAGCT GTAAAAACGG CTGGGGCAAT ACCCGACGCT	2880
TCAATGGTTA CGACCTTGGT AATGCCAGTA GTAGCAAAT TTTCCGCAAA AACCTTACCA	2940

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ATCTCTCGCA TCAAGCTAAA GTCAACTTGG TGGGTAAAA AGGAATCTAC CTTGAGGATG	3000
TTATCACCCA AGATATGCCC ATCCTTGAGG ATGCGCTCTT CTAATAATTT CATAAGACCT	3060
CCTAAAGTCT AAAAGTTAAT TTACTTGTG TTTAAATATT TCTATAGTGA TCCCTTTTGC	3120
TAATACTATA TATTTGATAA AACTATTACG AGCGAAGCGA GTCTTATCAA ATATTTCCCG	3180
TTGTAGTGGT ATCATAGACA ATAATCTTGT TATTGTCTAT GACGGGATTT TTGAGAGTAA	3240
AATAGTTCCG GGAAGTATTT TAGCCTAAGC CTAGAAATGA AAGAGCTAGG GGCTCAAAAA	3300
TTAGGGATGA AATTCCTGG ATTCTGAAA TTATTCACAG GATAATTTCA CCTCCCGTCC	3360
GCACTAATTA AGGGAAATAT TAAAAAAGA CCTACTTAAT CTCTAAGTAA GTCCCTTAAA	3420
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AAGCTAACAG TTATACTAAA TGAAAATCAA AGAGCAAACT AGGAAGCTAT CCACAACCTC	3720
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AACTGCAAAT TTATGAGGAT AGATATAGGG ATCACTGACA CGAAACTTTC TTTTGGTCAA	4020
GGGACGATAA ATAGGATAGT TTGCCCTCAT CACTCTTTAA TAGAGTTTGA AAACATCCTT	4080
TATGCCAAAG GAGAGATTGA CTCCACGACC AAAGGGATAG GTCAGTTCAG CTAGTTGATC	4140
CTTTGTTCCC TCCTCTAACA TTAGTTGACA CTCTTCAAGA GAAAGAGAAA GTTTTCTTCT	4200
GGACGTTGGT ATTCAATCCT AAAACCCAGT AAACCACAGT AGAAGGACCG GGAAGTTCCG	4260
ATATTCGATA CAAGCAACTC GGAATGACC GCATTGTAGT CCATATAGAA AATCCTTACA	4320
AGTCAATTTT CAAGACAATC GGTGTATGGT CTGGCGAGC ACCTGAGTCA ATCATATCAG	4380
ATTTAGTGAC CTTGTCAGCG ATACGGTTAC TTGTGAGCCA GTAGTCGATT CTCCAGCCTG	4440
TATTGTTGAT TTTAGAAGTT TTGCTGCGTT GTGCCACCA AGTGTAGCGT TCAGGAACAT	4500
CGCCATGAAC ATGGCGGAAG GTGTCTGTAA ATCCAGTTGC CAAAAGGTTG GTAAATCCAG	4560
CACGTTCCCTC GTCAGTAAAT CCAGGTGAAC GCGGTTGCT AGCAGGATTT GCAAGGTCGA	4620
TTTCATTGTG GGCTACGTTG TAGTCACCGG TCGCAAGGAC TGGTTTTTCT TTGTCTAGTT	4680

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CAGCCAAATA CTCAGCATAT TTGGCATCCC AGACTTGGCG TTCTTCCAAG CGTTTGAGAC	4740
CGTCACCAGC GTTTGGAGTG TAACTTGGG TTACGAAAAA TGCATCAAAAT TCTAGAGTGA	4800
TGATACGACC TTCCAAGTCC ATGGTAGAAG GGGCACCGAT TTCTGGGAAG CTGATAGTAG	4860
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GGGAAGAGCG CCACGTGTTT TCGTAGCCTG GGAAGAGTTC TTCTAAAATT TCCACGTGTT	4980
TCTTTGTAGG TCCTTTGGCA GAAAGCTTGG TTTCTTGGAT AGCAATGATA TCAGCATTTT	5040
CAGCGACCAA GGTTTGTAGG ACTTCTTGGG ACAATTTGGC ACGAGCTGAG TCACTAGTTA	5100
GGGCAGCGTT TAGGGAATCA ATATTCCATG AGATAAGTTT CATAAAGTTA CCTTTTTTCAT	5160
TCAGATTATA GATTTTATTA TACCAAAAAA AGATCTATTT CCCCAACGTA TGGTTTGAAA	5220
AATTACTCTC TTTCTTTTAT AATTAAAGAT GATTTTATGA AAGGGAGTGA AAATACATGA	5280
AATTCTACTC TTATGACTAT GACTCAGCC AAATCGGTCA GCAAAATGGT ATCATGGTTG	5340
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CTTTTGGTCA GCATCAGGAC TTATCAAAAC AATCAAGTTT CTAACAATAA ATTTCAAAC	5520
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GTTAATACTT CCACAAACAC AGATGGCGCA CTTATCAAGG TGGGAGATCG CTATTATCGT	5640
GCCCTAAATG GAAGTGAGCC AGACAAGTAC CTGTTAGAGA AAGTCCAATT GTATAAGACA	5700
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CGATTGGTCG TAGCGAAGAG TGGTTGCTTG ATAACCTCAG TAAACAAGGG CATGACAATG	6120
TAGCCAATAT CTTTATTGCT GAATATGACA AGGGTGCTGT TACAGTCGTA ACTTATGAAT	6180
AAGAAAAACC TGGGGTCTTG TACTCTTCGA AAATCTCTTC AAACCGCGTC AACGTCGCT	6240
TGCCGTATGT AGGTTACTGA CTTCTGTCAGT TCTATCTACA ACCTCAAAGC AGTGCTTTGA	6300
GCAGCCTGCG GCTAGTTTCC TAGTTTGCTC TTTGATTTTC ATTGAGTATT GGCCTCAGGT	6360
TTCCATTTGC AATCAGAAAG GGATTTTATG TCCATTATTC AAAAATTTG GTGGTTTTTC	6420
AAGTTAGAAA AACGCCGTTA TCTAGTCGGA ATTGTGGCCC TGATCTTGGT TTCCGTCCTC	6480



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AATCTCATTCTCCTATGGT TATGGGGCGG GTCATTGATG CCATCACATC GGGGCAATTA	6540
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TATTTGCGCT ATGTGTGGCG TATGTATATC CTTGGGACCT CTTATTGCTT GGGACAGATC	6660
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CGGACGGGTG ATCTGATGGC ACACGCAACC AATGATATCA ATGCCTTGAC TCGTTTAGCA	6780
GGTGGCGGTG TCATGTCTGC GGTGGATGCC TCTATCACGG CTCTGGTGAC TTTGTTGACC	6840
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GCCTATACGA CTAGTCGCCT AGGGAGAAAAG ACTCATAAGG CCTTTGGCGA ATCCCAAGCT	6960
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TCTTTCGGTT ATCAGGCAGA CGAGTTGAAG TCTTTTCAGG CAGTCAATGA ATTAACCTTC	7080
CAAAAGAACC TGCAAACCAT GAAATATGAT AGTCTCTTTG ACCCTATGGT TCTCTTGTTT	7140
GTGGGTCGT CCTATGTTTT AACGCTTTTG GTTGGCTCCT TGATGGTTCA GGAAGGGCAG	7200
ATTACAGTTG GGAATCTAGT CACCTTTATC AGCTATTTGG ATATGCTGGT CTGGCCTCTT	7260
CTGGCCATCG GTTCTCTCTT TAATACTACT CAGCGAGGGA AGGTTTCTTA CCAGCGGATT	7320
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GAAAATGGGC GTTTGGAGTA TGCCATTGAC AGCTTTGCTT TTGAAAATGA GGAAACACTG	7440
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GGCAATCCTA ACTTGCCCCCT TTCAGCGGTC GAGGAAGCTA CTAAGCTAGC CCGGGTTTAC	7740
CAAGATATTG TAGACATGCC TCAAGGATTT GATACGCTGA TTGGTGAAAA AGGAGTCACT	7800
CTTTCTGGTG GTCAAAAGCA ACGGTTGGCT ATGAGTCGGG CTATGATTTT AGACCCTGAT	7860
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GCTGTTGTCC ATGCAGATTT TATTTTAGTT CTACAAAATG GTCAAATTAT CGAACGAGGC	8040
ACGCACGAAG ACTTGCTAGC TTTGGATGGC TGGTATGCCC AAACCTACCA GTCTCAGCAG	8100
TTGGAAATGA AAGGAGAAGA AGATGCAGAA TAAACAAGAA CAATGGACTG TATTGAAGCG	8160
CTTGATGTCT TATCTCAAGC CTTATGGACT CCTGACCTTT TTGGCACTCA GTTTTCTCCT	8220

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AGCGACGACG	GTCAATTAAAA	GTGTCATACC	CCTCGTGGCT	TCCCACTTTA	TCGACCAGTA	8280
TCTCAGCAAT	CTTAACCAAC	TAGCCGTTAC	CGTTTGGCTG	GTCTACTATG	GTCTCTACAT	8340
CCTACAAACT	GTA GTTCAGT	ATGTCGGCAA	TCTTCTCTTT	GCGCGCGTGT	CTTACAGTAT	8400
TGTTAGGGAT	ATTCGTGGG	ATGCCCTTGC	CAATATGGAG	AAACTGGCCA	TGTCTTACTT	8460
TGACAAGACG	CCAGCAGGTT	CTATCGTTTC	TCGTTTGACC	AACGATACCG	AGACGATTAG	8520
TGATATGTTT	TCTGGGATTT	TATCCAGCTT	TATCTCAGCA	GTTTTTATCT	TTCTGACAAC	8580
CCTTTATACC	ATGTTGGTGC	TGGATTTTCG	TTTGACGGCT	TTAGTCTTGC	TCTTTCTTCC	8640
TTTGATTTTC	CTTTTGGTCA	ATCTCTATCG	AAAAAAGTCA	GTGAAAATCA	TCGAGAAAAC	8700
CAGAAGTCTC	TTGTCAGATA	TCAATAGTAA	GCTGGCAGAG	AATATCGAGG	GAATCAGGAT	8760
TATTCAGGCC	TTTAATCAAG	AGAAGCGCCT	GCAGGCAGAA	TTTGATGAAA	TCAACCAAGA	8820
ACACTTGGTC	TACGCCAACCC	GTTCTGTAGC	CTTGGATGCC	CTCTTTTGA	GACCTGCCAT	8880
GAGTTTGGCTG	AAACTTCTAG	GCTATGCAGT	CTTGATGGCC	TACTTTGGCT	ACCGTGTTTT	8940
TTCTATCGGG	ATAACGGTCG	GGACCATGTA	TGCCTTTATC	CAGTACATCA	ACCGCCTTTT	9000
TGACCCCTTG	ATGAGGTGA	CGCAAAACTT	TTCAACTCTG	CAAACGGCTA	TGGTTTCTGC	9060
AGGTCGTGTC	TTTGCCCTGA	TAGACGAGAG	GACCTATGAA	CCTCTTCAAG	AAAATGGGCA	9120
AGCCAAAGTC	CAAGAAGGCA	ATATCCGTTT	TGAACATGTG	TGTTTCTCAT	ATGACGGTAA	9180
ACATCCGATT	CTGGATGACA	TTTCTTTCTC	TGTTAATAAG	GGTGAAACCA	TTGCCTTTGT	9240
AGGTCATACA	GGTTCAGGGA	AATCGTCTAT	TATCAATGTC	CTCATGCGCT	TTTATGAATT	9300
CCAGTCAGGG	AGAGTTCTCT	TGGATGATGT	GGATATCAGG	GATTTTCAGTC	AAGAAGAGCT	9360
GAGAAAAAAC	ATCGGTTTGG	TCTTGCAGGA	ACCTTCTCTC	TATCATGGAA	CTATTAAAGTC	9420
CAATATCGCC	ATGTACCAAG	AAACCAGTGA	TGAGCAGGTT	CAGGCTGCGG	CAGCCTTTGT	9480
GGATGCAGAT	TCCTTTATTC	AAGAACTTCC	TCAGGGGTAC	GACTCCCTCG	TTTCCGAGCG	9540
TGGTTCGAGC	TTCTCTACTG	GGCAACGCCA	GCTTCTTGCC	TTTGCTAGAA	CAGTCGCCAG	9600
CCAGCCTAAA	ATCCTGATTT	TGGATGAAGC	GACAGCCAAT	ATTGACTCTG	AAACAGAAAG	9660
CTTGGTTCAA	GCTTCTCTGG	CGAAGATGAG	ACAGGGCCGA	ACAACTATTG	CTATCGCTCA	9720
CCGCCTTTCT	ACTATTCAAG	ATGCCAACTG	CATCTATGTC	TTGGATAAGG	GACGCATTAT	9780
CGAGAGTGGA	ACCCATCAGG	AACTCTTGCC	TCTGGGAGGA	ACCTATCACA	AGATGTATAG	9840
TTTGCAGGCA	GGGGCCATGG	CCGATACTCT	TTGAAAATCT	CTTTAAACCA	TGTCAGCTTT	9900
ATCTGCAATC	TCAAAGCTGT	ACTTTGATTT	TCATTGAGTA	CTAGAAGGAA	ATCCTTCAAA	9960
TTACAGATTT	CTTTCACCGC	CTTTTCCATT	TTCTGGTATA	ATGAAAAATG	TTGACAAATA	10020

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GTATAATAAA AACAAAGGAG AACAGCATGC TGAAATGGGA AGACTTGCCT GTGGAAATGA	10080
AATCAAGCGA GGTGAGTCT TACTACCAGC TTGTCTCTAA AAGGAAGGGT TCGCTGATTT	10140
TCAAGCGTTG CTGGACTGG GTTTTGGCCT TGGTCTTACT GGTCTGACC TCTCCCATCT	10200
TTCTCATCTT GAGCATTGG ATCAAGTTGG ATAGCAAAGG GCCAGTGATT TACAAGCAAG	10260
AGCGTGTGAC CCAGTACAAC CGTCGGTTCA AGATTTGGAA GTTTCGTACC ATGGTGACGG	10320
ATGCGGATAA AAAAGGAAGT CTGGTGACTT CTGCTAACGA TAGCCGCATT ACCAAGGTTG	10380
GAAATTTTCA CCGACGTGTC CGTTTGGACG AACTGCCTCA GTTGGTCAAT GTCCTTAAAG	10440
GTGAGATGTC CTTTGTCSGT ACACGACCTG AAGTGCCACG TTATACAGAG CAGTATAGCC	10500
CTGAAATGAT GGCAACCTTG CTCTTGCAAG CAGGGATTAC CTCTCCAGCC AGCATCAACT	10560
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CCTATGTGGA GCATGTTCTT CCTGAAAAGA TGCGCTATAA CCTCGCCTAT CTCCGAGAGT	10680
TTAGTTTCTT TGGGGACATC AAAATCATGT TTCAAACCGT GTTTGAGGTA CTAAAATAAA	10740
GTAGTCATAA GAAAATGAGT ACAGATAAAA GGAGCAAATC AATGCCAAAT TACAATATTC	10800
CATTTTCACC GCCTGATATC ACAGAAGCAG AAATTACTGA AGTAGTGGAT ACCCTGCGTT	10860
CTGGTTGGAT CACAACAGGT CCTAAAACAA AAGAAGTGA GCGCCGCTTG TCTCTTTACA	10920
CACAGACACC TAAGACTGTT TGTCTCAACT CTGCGACAGC CGCTCTGGAG TTGATTTTAC	10980
GCGTTTTGGA AGTGGGACCT GGTGATGAAG TCATCGTTCC AGCCATGACC TATACGGCTT	11040
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CGTTTGAGAT GGACTATGAC CTGCTTGACC AAGCTATCAC TGAGAAAAC T AAGGTGATTA	11160
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TTGTCTCTGA TAGTGCCAC GCTTTGGGAT CTATTTATAA AGGACAACCT TCTGGTTCTA	11340
TCCGTGACTT TACTTCCTTC TCATTCCATG CAGTTAAGAA CTTTACAACG GCAGAAGGTG	11400
GAAGTGCGAC TTGGAAAGCC AATCCAGTGA TTGATGACGA AGAGATGTAC AAGGAATTCC	11460
AAATCCTTTC CTTTCACGGG CAAACTAAGG ATGCTCTTGC CAAGATGCAA CTGGGGTCAT	11520
GGGAATACGA TATCGTTACA CCAGCCTATA AGTGCAACAT GACCGATATC ATGGCTTCAC	11580
TTGGTTTGGT ACAATTGGAC CGCTATCCAA GTTTGTTGCA ACGCCGTAAG GACATTGTGG	11640
ACCGCTATGA TAGTGGTTTT GCAGGTTCTC GCATCCATCC TTTGGCACAC AAGACTGAAA	11700
CTGTGGAATC TTCACGCCAC CTCTACATCA CCCGTGTAGA AGGAGCAAGC CTAGAAGAAC	11760

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GCAACCTCAT CATCCAAGAA TTGGCTAAAG CAGGAATTGC AAGTAATGTT CACTACAAAC	11820
CGCTTCCTCT CTTGACAGCC TATAAGAATC TTGGATTGGA TATGACGAAC TATCCTAAGG	11890
CCTATGCCTT CTTTGAGAAT GAAATTACCC TCCCTCTTCA TACTAAATTA AGCGATGAAG	11940
AAGTAGACTA TATCATTGAG ACTTTCAAAA CAGTTTCTGA AAAAGTGCTA ACTTTATCAA	12000
AAAAATGACA AACTACAGTC AAGCGAAAGT GATCCTGCCC CTAAAAAGTC TAATTGAGTG	12060
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CAGAGAGAGA ATTTTATAG GATTTTCCTT TCTTGTTGGA GTCCCGTGGT TTGAAATAAG	12180
ATGTGAGCAA TTTAGTGTAG CATTTAGAAT CCTTACTAGA CATCATTTAG AAAATCTAGT	12240
GTCTTGTTCT AGTTTCAAT TCACCCTATT TTTTGAAAGA CGTGAGTTT CATGAGTGAG	12300
ATTGTGGAAT CTCGCGTCTT TTTTGTGTTT CAGAATATTG TTCAAATTT TGTGCCTGTC	12360
TTTCATGTTT TAGTCATTCT TTTGCATGAT AGAATTTATA GCATGTTGAT ATTATAATAA	12420
TACAAATATT CTATATGTTT AGTGATGCTT GCTATACATT ATTAGATCTC CTGCGAGACA	12480
ATCTATAAAA CACTTGTCTA CGATTACCTA TATGCCCTAT TCCAGTATTT TAGAAGCACT	12540
GCATCTATTT TTATCGAGGT TAAATCTAGC TTTTATAGAA GGTCTATTTA AGAAATATAT	12600
TGTAGTGTTT TAGTTTCAAT CCGCCATATG AGCGATATTC AGGTAAATAT CCCTGGCGAA	12660
TGCTTGATG ACAAGGTATT TGTTCTTTCA TTTATAATTT ACAACATATC AACAAATTTA	12720
AATATAGTAA ATGGGATATT TTATATTCAA GCTAAGAAAG ATAGCATCAC TTTGAATGG	12780
AAGGCTAAAG AGCAAAGTGA GAAGTTGGCC ATAGATAGCT CAAAACCTG CTTTGAGGTT	12840
GTAGATATAG TAAAATGAAA TGAGAATAGG ACAAATTGAT CGGGACAGTC AAATCGATTT	12900
CTAACAATGT TTTAGAAGTA GAGGTGTACT ATTTAGTTT CAGTCTACTA TAGAACTGAC	12960
CAAGTCAGTA ACCTAGACTT AGGGCAAGGC GGCCTGACC TAGTTTGAAG AGATTCCGA	13020
AGAGTATAAA TTTTAATATT TTCTTGTTT ATTCCTTGAC AATTCAATTT GGAAAATATA	13080
TGATAAAGAT AATGACAGCG GTGTCAATCT ATCTATTTTA AGAAAAGTAA TAATCAATTG	13140
TTAAAAATAG TAAAAAATTT GGAGGTTCTG ATGAAATATT TTGTTCCG	13188

(2) INFORMATION FOR SEQ ID NO: 71:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 32768 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 71:

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AACGAGTGCA	TCAGTCTCAG	CAAGCACCAG	TGCGTCGGCC	TCAGCAAGCA	CCAGCGCGTC	60
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AACAAGTGCA	TCGGCTTCAG	CAAGCACAAG	TGCTTCAGCC	TCAGCAAGTA	TCTCAGCGTC	180
TGAATCCGCA	TCAACGAGTG	CGTCCGCTTC	AGCAAGTACT	AGCGCCTCAG	CATCAGCGTC	240
AACAAGTGCT	TCGGCTTCAG	CGTCAACGAG	TGCGTCTGAG	TCAGCATCAA	CGAGTACGTC	300
AGCCTCAGCA	AGCACATCAG	CTTCTGAATC	TGCATCAACC	AGTGCGTCAG	CCTCAGCATC	360
GACAAGCGCC	TCAGCTTCAG	CAAGTACCAG	TGCGTCAGCC	TCAGCAAGTA	CCAGTGCTTC	420
AGCCTCAGCG	TCGACAAGTG	CGTCCGCTTC	AACCAGTGCA	TCTGAATCGG	CATCAACCAG	480
TGCGTCAGCC	TCAGCAAGTA	CTAGCGCCTC	AGCCTCAGCA	TCAACGAGTG	CGTCCGCTTC	540
AGCAAGTACT	AGTGATCAG	CATCAGCATC	AACGAGTGCA	TCGGCTTCAG	CAAGTACCAG	600
CGCCTCAGCT	TCAGCAAGCA	CCAGTGCGTC	AGCCTCAGCA	AGTACCAGCG	CCTCAGCCTC	660
AGCAAGCACC	AGTGCTCAG	CTTCAGCAAG	TACCAGTGCG	TCAGCCTCAG	CGTCGACAAG	720
TGCGTCGGCT	TCAGCAAGTA	CCTCAGCGTC	TGAATCAGCA	TCAACGAGTG	CATCAGCTTC	780
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TGCGTCCGCT	TCAGCAAGTA	CTAGCGCCTC	AGCATCAGCG	TCAACAAGTG	CTTCGGCTTC	900
AGCGTCAACG	AGTGCGTCTG	AGTCAGCATC	AACGAGTACG	TCAGCCTCAG	CAAGCACATC	960
AGCTTCTGAA	TCTGCATCAA	CCAGTGCGTC	AGCCTCAGCA	TCGACAAGCG	CCTCAGCTTC	1020
AGCAAGTACC	AGTGCGTCAG	CCTCAGCAAG	TACCAGTGCT	TCAGCCTCAG	CGTCGACAAG	1080
TGCGTCCGCC	TCAACCAGTG	CATCTGAATC	GGCATCAACC	AGTGCGTCAG	CCTCAGCAAG	1140
TACTAGCGCC	TCAGCCTCAG	CATCAACGAG	TGCGTCCGCT	TCAGCAAGTA	CTAGTGATC	1200
AGCATCAGCA	TCAACGAGTG	CATCGGCTTC	AGCAAGTACC	AGCGCCTCAG	CTTCAGCAAG	1260
CACCAGTGCG	TCAGCTCAG	CAAGTACCAG	CGCCTCAGCC	TCAGCAAGCA	CCAGTGCTTC	1320
AGCTTCAGCA	AGTACCAGTG	CGTCAGCCTC	AGCGTCGACA	AGTGCGTCGG	CTTCAGCAAG	1380
TACCTCAGCG	TCTGAATCAG	CATCAACGAG	TGCATCAGCT	TCAGCATCAA	CAAGTGCTTC	1440
AGCTTCAGCA	AGTACCAGTG	CGTCGGCTTC	AGCATCAACG	AGTGCTTCAG	TCTCAGCGTC	1500
AACCAGTGCC	TCTGAATCAG	CATCAACAAG	TGCCTCGGCT	TCAGCAAGCA	CCAGTGCGTC	1560
GGCTTCAGCA	AGTACTAGTG	CATCGGCTTC	AGCATCGACA	AGTGCGTCTG	AATCGGCATC	1620
AACGAGTGCT	TCGGCTTCAG	CATCAACGAG	TGCGTCAGCC	TCAGCAAGCA	CATCAGCTTC	1680
TGAATCTGCA	TCAACCAGTG	CGTCCGCTTC	AGCGTCAACC	AGTGCGTCGG	CTTCAGCGTC	1740

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GACAAGTGCT TCGGCTTCAG CATCAACGAG TCGGTCGGCC TCAGCAAGCG CAAGTACCTC	1800
AGCGTCAGct TCCGCCTCAA CCAGTGCGTC GGCTTCAGCA AGCACAAGTG CGTCAGCCTC	1860
AGCAAGTATC TCAGCGTCTG AATCGGCATC AACGAGTGCG TCTGAGTCAG CATCAACGAG	1920
TACGTCAGCC TCAGCAAGCA CATCAGCTTC TGAATCTGCA TCAACCAGTG CGTCAGCCTC	1980
AGCATCGACA AGCGCCTCAG CTTCAGCAAG TACCAGTGCT TCAGCCTCAG CGTCGACAAG	2040
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TACTAGTGCA TCAGCTTCAG CATCAACGAG TGCATCGGCT TCAGCATCAA CCAGTGCCCTC	2160
GGCTTCAGCG TCAACCAGTG CGTCAGCTTC AGCAAGTACC AGTGCTTCAG TCTCAGCATC	2220
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578  
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TGGATTAAGC AATTAAATAA GCGCTTAGAG AAGTTTGACT CAGAAATTAT TAATTGTCGG	7260
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580

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AGAACTGACG AAGcctCAGTA ACATATATAC AGCAAGGCGA CGCTGACGTG GTTTGAAGAG	28380
TATTACTGTC TATATTTTTG GTAAAAATCA ACTTTTACTT GGATGAAGGT TTTGGCTTCA	28440
CGTAGGAGTT GAAGAAGGGT GCGCGGGTTC TCAAATTCCT CTCTTGCTCT GGCAGACTG	28500
CGGTTCGGGA AGACTTCCAG ATAACGTTCA ATTTTCATCTA GCAAATCAGA AGCAGGATTG	28560
GTCTGGCTCA GTTGACCTGC AATTTTGGAA AAGAGTTGCG CTAAGATCAG GCTTTCCTG	28620
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GCGGCAAGGT GACAAGTGT AATCTGTTGG GCCATGTTTC TCAGGATACG ACTTTGTGCG	28680
TGTCTCATCT CAAAGTAGTG GATATGGTAG TCTGTCTGGT GAAAGAGGTG GTCAGAGTGA	28740
TCCAAATAGA CCAGTCTGAG GGCTTCTTTC AAAAGCGTGT CTAATTCTGC TACCAGCTGT	28800
GCTCGGTTGC GTCCGTCTCC TCTGGATAAA TAGTATTTGA AGCGCTGGAG GATATCTTTT	28860
AACTTTTCTT CCACCAGCGT GTGGTAGTGC TGGATTTCTT CTTCTCGTGA AGGCATATAG	28920
AGATTAACAA GCAAGGCAAA TCCTGTACCA ATAGCAAAGA GAAGGAATTC ATTGACTAGA	28980
AGGTCTGGAG AGGTTGACTC TTGAACCAAG AGATGGCTAA CAAAACAGT GCTTGGTGTG	29040
ATGCCAATTT CCCAGCCCAT CTTGTAGGCT AAAGGAACGT AGAAGGCCAG ATAGAGGCCG	29100
AGACTCCAGA TATGAAATCC GCTCAAGTGA AAAGCTAGAA CACCGATAGC CAGAGCTAGA	29160
AGCATAGAAA AAAGACGATT GCGAGCCAGT TTTAAAGTAC TTCTACCGCT ATCAGATAGG	29220
CTCAAGAGAG CGATAATTCC AGCCGAAACT GCTGACGAAA GATTGAGAAA ATAAGCAAGC	29280
AGGCAGGCAA GACAGGTAGC TAAGATGAGC TTGGTCGTAC GTTGGCTAAT AGACATAAGA	29340
ATTTCTAAT AAGTTAGAAT AAAAGCGTAA AAGACAAGAC ATGAGCAGGC TTGCCTTGAT	29400
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GAGGGAACCT CCGGCAATAC CTGAAGCATC ACAGGATGAG ATAGCTGCTA CCACACTGAG	29640
GACAAAGGCT GTGGCAAAGT CAACAGGAAT TCCAAGAGTG TTAAGTGCAG CAAGGGTCAA	29700
AAGGTTAATG GTAATCGCTA CTCCAGCCAT ATTGATAGTA GAACCGAGTG GGATAGAAAC	29760
AGAATAGGTA TCTGGGTTGA GTCCAAGGTC ATGGCAGAGT TTCATGTTGA CAGGAATGTT	29820
AGTCCGAGAA CTACGAGTGA AAAAGGCTGT CACACCGCTG ACACGGAGGC AGTTCCAAAC	29880
TAGAGGGTAA GGATTGCGTC TCATAAAGAA GAAGGCAATC AAAGGGTTGA CCACAGGGGC	29940
AACAAAAAGC ATAGTCGTTA CTAATAGAAC CAATAAAATA CCGTAGTTGG CAAGGCTTCC	30000
GACTCCCTTG TCAGAAATGG TTTTAAAAAC AAGACCAAGG ATTCCAAATG GAGCCAGATT	30060

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GATGATCCAT TCGACAATTT TAGAAGTCAC GTCAGCGATA GTTTTTAGCA ATTCTTGACT	30120
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TTCAATAGGG ACGATGAAAT TTGCTAGTAC AGCTACAAGA GCAGCGGCGA AAGTCCCTAT	30360
CATAGGATAT ACAAGAAAAC AACAGTTTTC ATATTGCTAT CTGTGCCCTT TTGATGTTGG	30420
GAAAGGGCAT TGGCAACGAG AGCAAAGACT AGGATAGGAG CAACAGCTTT TAGACCTCCA	30480
ACGAATAAAT CCTCGAGTAG CCCAATCCCT GAGAGATTAG GAAGGGTCAG TCCTAGGATT	30540
CCCCACAAAG CATACCAATC AAGATACGCT TGACAAGGCT TGCCTTATTC CAAGCATGAA	30600
TGATTCTTTT CATAATAATC TCCTTTTGT GTAGTGATTA TGATTATAGT ATAAATGATA	30660
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TATGGGAGCC CAAGGCTTTC TGTCTGATGT CATCAATGGC TTTTTCATCC TCTTTGAACG	31140
TCAACTGGAT GTGGGAGATG AGGTCGTTCT GACAAATGGA CCGATTACTG TATCGGGTAA	31200
GGTTGTCAGT GTGGGAATTC GTACGACACA GCTTCGTAGC GAGGAGCAAG CCCTTCACTT	31260
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GAGCATCGTC GCCTGATTAC CATTAGTAAT ACCAAGAACG CCTATGTCAT TGAACAGATG	31680
ACTCGTTATC TGGAGAACCA TGACACGCTT TCGATTTATA AGTTTCTCTT TGCCAGTCTG	31740
GAAATCATCA GCAATGCCTA CTATCCTGTC ATTGAGCAGA TGGACAAGAG TAGGGATGAG	31800
GTCAATGACC TCTTGCGCCA GCGAACTACC AAGAAAAACC TCTTTGCTCT GTCTGATTG	31860

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GCCATGATTG AGGCTCATCA GCTGGTATCC ATGACAGACC TAATCTCTCA GATTTTACAG	32040
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GCAGGTTTGT GGATTGTTTT ATCCTTGTTA CTAAGGAAAA TTGCGAAAAA AAGTTAAGAA	32280
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AACGAGCAGT TGAGAAATTT GGGATTGATT ACGTTTACTG GGCCTTGAAG CCCTTCACAT	32580
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GTGACCAACT CATGACAGAT ATACGAGCAG CCCACCGTCC AGGGATTCCG TCAATTTTAG	32700
TCAAACCCCTT GGTCCAACAT GACTCAATCA AAACGCAGAT TAACCGAACT CGTGAGCGTC	32760
GTGTTATG	32768

## (2) INFORMATION FOR SEQ ID NO: 72:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 14872 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 72:

CCAGTCACAA AGAAATTGAG CGCGTTCAGC TGAGGATGCA CTATGATGCA AGCTACATTT	60
CATTTGATGG GATATTAAGA AAGGAGATTT TCATGACACT TTTAGATGTA AAACACGTTT	120
AAAAAATTTA TAAAACACGT TTTCAGGGCA ACCAAGTAGA AGCCCTCAAG GATATTTCACT	180
TTACCGTAGA AAAGGGTGAC TACGTTGCCA TCATGGGTGA GTCTGGTTCT GGTAAATCAA	240
CTCTTCTCAA TATTCTAGCT ATGTTGGATA AACCAAGTCG TGGTCAGGTT TACTTGAATG	300
GAAGTCACAC CGCAACTATT AAAAATTCAC AGGCTTCTAG TTTCCGGCGT GAAAAGCTAG	360
GATTTGTCTT CCAAGACTTT AACTTGCTAG ATACTCTGTC TGTTAAGGAC AATATCTTGC	420

594

TTCCGCTTGT CTTGTCAAGA AGACCTATAA CGGAGATGAT GAAGAAATTG GTGGTGACAG	490
CTGAGAATCT GGGTATTAAC CAATTGCAAG AGAAGTACCC TTACGAGATT TCTGGTGGTC	540
AGAAACAGCG TGTAGCAGTA GCGCGGCCA TCATCACAGA ACCTGAAATT CTCCTTGCGG	600
ACGAGCCAAC AGGAGCCCTT GATTCCAAGT CATCTGCAGC CTTACTTGAT GTCTTTAATG	660
AAATCAATGA GCGTGGGCAA ACCATCCTCA TGGTAACCCA CTCAACAGCA GCTGCTAGCA	720
GGGCCAAGCG TGTTCCTTTT ATCAAAGACG GCATTCTTTA CAACCAAATC TACCGTGGAG	780
AGAAGACAGA GCGTCAGATG TTCCAAGAAA TCTCTGATAC CTTGACTGTC ATGGCAAGCG	840
AGGTGAATTA GTATGTTTCG ATTAACCAAT AAGTTAGCGG TATCGAACTT GATTA AAAAC	900
CGCAAACCTCT ACTATCCCTT TGCCTGGCT GTTCTCTTGG CAGTCACCAT CACCTATCTC	960
TTTTACTCCC TAACCTTCAA TCCAAAGATT GCGGAAATCC GTGGAGGAAC CACCATTCAA	1020
GCAACACTTG GATTTGGTAT GTTTGTCGTT ACCCTTGCGT CACCATTTATC GTCCTCTATG	1080
CCAATAGTTT TGTCATGAAA AACCGTTCCA AGGAACTGGG TATATATGGC ATGTTAGGCT	1140
TGGAGAAGCG CCATCTAATC AGTATGACCT TTAAGGAGTT AGTGGTATTT GGGATTCTAA	1200
CTGTTGGAGC GGGTATCGGT ATTGGAGCCT TGTTTGACAA GTTAATTTTC GCTTTCCTGC	1260
TCAAACCTAAT GAAACTGAAG GTTGAGCTGG TTGCTACCTT CCAAATGAAT GTTGTCAATG	1320
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TCGCCCCGAT GAATGCCCTC CAGCTCTCGC GTGAGAAAGC AAGCGGAGAG AAAAGAGGTC	1440
GCTTCTTACC TCTCCAAACG ATTCTTGGTT CCATAAGTTT AGGGATTGGC TATTATCTTG	1500
CCCTTACGGT AACCGATCCT CTTACAGCCC TAACAACCTT CTTCCTAGCT GTTTTGCTGG	1560
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TCTTGAGCCA GTTTGCAAGT GACAAAGGTT ATAGTGTCAG AGAGAAAGAA GTACTTCGTT	1920
ACAGTAACCTT TGGTATTGCA AATCAAGAAG GAACCAAGTT AACTATTTTT GAAAAAGGAC	1980
AAAACCGTGT CCAACCCACA ACAGTTTTCG TGGTATTTGA CAAAAAGAT TATGAAAAATA	2040
TGACTGGTCA AAAACTGTCT CTATCAGGAA ATGAGGTCGG TCTCTTTGCC AAAAATGACG	2100
GACTGAAAGG ACAGAAAGCT CTAACCTTAA ATGATCATCA ATTTTCTGTC AAAGAAGAAT	2160
TTAATAAAGA TTTTATTGTG AACCATGTTT CAAATAAGTT TAATATCTTG ACTACTGATT	2220



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TCTATAATCA GTTTTACGGT GGTATGAATG TAAATGTCAG TGAAGAAGAA CAACTCAAGG	2340
TCGCTGAGGA GTATGAAAAC TACCTCAATC AATTTAATGC TCAATTAGAC ACAGAAGGTA	2400
GCTATGTTTA TGGTAGCAAT CTAGCAGATG CTAGTTCTCA GATGAGTGCC CTCTTTGGTG	2460
GTGTCTTCTT TATCGGTATT TTCCTATCCA TTATCTTTAT GGTTCGGAAT GTTCTGGTCA	2520
TCTACTACAA ACAAATTTCT GAAGGCTACG AAGACCGTGA ACGCTTTATT ATCTTGCAGA	2580
AAGTCGGTTT GGACCAAAAG CAAATCAAGC AAACCATCAA CAAACAGGTT TTAAGTGGTT	2640
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GCATAATAAA TGTGCTCCTC AGAAAATACA TTAGACAAGC GATTGAATTC CGTTCCATTA	3840
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ACATCAGCAC TTTTATTTGG AATCAATCGG ATGATCTGAT GTCTACTTTT TCGATCCGTC	3960

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TCATAAGACT GTTGAGCATA GTCGGCAGAA TAAACCTCTT TGAAGCGCCC TTTTCCAAGA	4380
CATTGTGCGA CTGTCCCACG CTTGATTTCA GTGTGGATAG TTTGAGGAAC TTTTCCAAGC	4440
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TCAAGCGATT GGAGGAAATG AACTAATCCA CACTGGCTTA TTCCAAGTAT ACCACTTGGG	7620
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CGAAGATGAT TACGATATTA TCATCAACGA TGCGACAGAT CCATTTG GCC ATACGGAAGG	8160
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GATGGGAAAT GGGTCGAAGT CGAAGCTATG TCTATCAAGC GTGAGTATGA TTTCCCTCAA	9240
GTTGGACAAA AAGATATGTA TCTCCTTCAC CATGAAGAAA TCGAATCATT GGCCAAGAAC	9300

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ATGAAATGTC TTGAAAATGT TGGACTCCTT CGTACGGATA CCATTAACTT TAACGGCCAA	9420
GAAATTGTTC CAATTCAATT TTTGAAAGCC TTGCTTCCAG ATCCTGCCAG TCTTGGGCCA	9480
CGTACAGTCG GAAAAACCAA TATTGGATGT ATCTTTACAG GTGTCAAAGA CGGTGTCAAA	9540
AAGACTATCT ATATCTACAA TGTCTGCGAC CATCAGGAAT GTTACGCAGA GGTGGTTTCG	9600
CAAGCTATTT CTTATACGAC AGGAGTTCCA GCCATGATTG GGACAAAATT AGTCATGAAC	9660
GGAACTTGGA AACAAAGCTGG AGTGATAAC CTTGAGGAGT TAGATCCAGA TCCATTCATG	9720
GAAGCTTTGA ATGAGTATGG TTTGCCATGG GTTGTGGTTG AAAATCCACA AATGGTGGAC	9780
TAATGAAGTT AGAACAAGTA CCAACACCAG CCTATGTTAT TGACTTGGCC AAGTTAGAAG	9840
CTAATTGCCG CATTCTACAA TATGTACAAG AAGAGGCCGG TTGCAAGGTC TTGCTTGCCC	9900
AGAAGGCATA TTCCCTCTAC AAAACTTATC CCTTGATTAG CCAGTATCTA TCAGGTACGA	9960
CAGCTAGTGG ACTCTATGAG GCCAAATTGG CAAGGGAAGA ATTTCCCTGGT GAAGTCCATG	10020
TATTTGCCGC TGCTTTCAAG GATGCAGACT TGGAGGAATT GCTAGAGATA ATGGACCATA	10080
TAGTCTTTAA CTCAGAGAGA CAGTTGCGTA AACACGGTCC GCGTTGTCGA GAGGCTGGTG	10140
TCAGTGTTGG TTTGCGCCTC AACCCCTCAGT GTTCAACTCA AGGcAGATCA CGCGCTCTAT	10200
GACCCTTGTG CACCAGGTTT TCGCTTTGGA GTTACTATAG ACAAGATTCC GAGTGATTTG	10260
CTAGATTTGG TTGACGGACT TCATTTTCAT ACCCTTTGCG AGCAGGGAGC AGATGATTTA	10320
CAACAACCTT TGAAAGCAGT AGAAGAACAG TTTGGTCCCT ACTTACATGA GGTAAAATGG	10380
CTCAATATGG GTGGTGGTCA TCATATTACA AGAGAAGGTT ACGATGTGGA TTTGCTGATT	10440
TCAGAAATCA AGCGTATCCG AAAAACTTAC AATCTTGAAA TCTATATCGA GCCTGGTGAA	10500
GCCATTGCGC TTAATGCCGG TTATTTAGCA ACTGAGGTAT TAGATATTGT AGAAAAACGGT	10560
ATGGAAATCT TGGTTTTAGA CGCCTCTGCG ACCTGCCATA TGCCTGATGT ACTTGAGATG	10620
CCCTATCGTC CACCTTTGAG AAATGGCTTT GAGTCACAGG AAAAAGCCCA TACCTACAGA	10680
CTTTCTTCTA ATACCTGTCT GACGGGCGAT GTGATTGGTG ATTATAGTTT TGAAAAATCCA	10740
GTCCAAATCG GAGACAGACT TTATTTTCAA GACATGGCCA TTTATTCTTT TGTCAAAAAT	10800
AATACCTTTA ATGGTATTGG ATTGCCAAGT CTCTATCTCA TGGACGAACA GGGAGACTGT	10860
AGCTTACTCA AAGCTTTTGG CTATCAAGAC TTAAAGGGA GATTATCATG ATGGACAGTC	10920
CAAAAAAATT AGGCTATCAC ATGCCAGCAG AGTACGAACC CCATCATGGT ACCCTCATGA	10980
TATGGCCGAC TCGACCAGGA TCATGGCCTT TTCAAGGAAA GGCTGCTAAA AGAGCATTTA	11040

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CTCAGATTAT CGAGACCATA GCAGAAGGGG AAAGAGTCTA TCTTTTGGTG GAGCAGGCCCT	11100
ATCTATCTGA AGCCCAATCC TATCTTGGAG ACAAGGTTGT TTATTTAGAC ATTCCCACCA	11160
ATGATGCCTG GCGCGCTGAT ACTGGCCCAA CCATTCTCGT CAATGATAAA GGTAAGAAAT	11220
TAGCCGTGGA TTGGGCCTTC AATGCTTGGG GAGGCACCTA TGATGGTCTT TATCAAGATT	11280
ATGAAGAGGA TGACCAAGTA GCCAGTCGTT TTGCTGAGGC CTTGGAAAGG CCTGTCTATG	11340
ATGCTAAACC TTTGTACTG GAAGGAGGCG CAATCCATAG CGATGGTCAA GGAACATTC	11400
TCGTAACCTA AAGTTGCTTG CTTAGTCCTG GTCGCAATCC TAACTTGACT AAAGAGGAGA	11460
TTGAAAACAC ATTATTAGAA AGTCTTGGTG CTGAAAAAGT TATTTGGCTT CCTTATGGTA	11520
TTTATCAGGA TGAAACCAAT GAACACGTCG ATAATGTTGC TGCCTTTGTT GGTCTCTCTG	11580
AGCTTGTTTT GGCTTGGACA GATGACGAAA ATGATCCCCA GTATGCCATG TCAAAAGCAG	11640
ATCTCGAACT CTTAGAACAG GAAACAGATG CAAAAGGTTG TCACTTCACC ATTCATAAAT	11700
TGCCATATCC TGCAGTTCGA CAAGTTGTGA CAGAAGAAGA TTTGCCAGGC TACATCTATG	11760
AAGAAGGAGA AGAAAAGCGA TACGCAGGTG AACGACTAGC AGCTTCCTAC GTAAACTTTT	11820
ATATCGCCAA CAAGGCTGTC TTGGTTCCAC AGTTTGAGGA TGTAACGAC CAAGTGGCCT	11880
TAGATATCCT CAGCAAGTGT TTCCCAGACC GTAAAGTTGT CGGAATACCA GCCAGAGATA	11940
TTCTCTTAGG TGGTGGCAAT ATCCACTGTA TCACCCAACA AATTCCAGAA TAGGAGAAAA	12000
AGATGAGAAA TGTAAGAGTT GCAACCATTG AGATGCAATG CGCTAAGGAT GTGGCAACAA	12060
ATATCCAAAC CGCAGAGCGT TTAGTACGTC AGGCTGCTGA GCAAGGAGCC CAAATTATTC	12120
TCTTGCCCGA GTTGTGTGAA CATCCCTATT TCTGTCAGGA ACGTCAGTAT GACTACTACC	12180
AGTATGCCCA ATCTGTAGCG GAAAATACTG CCATTTCAGCA TTTTAAGGTG ATTGCTAAGG	12240
AACTACAAGT TGTTTTACCA ATCAGTTTCT ATGAAAAAGA TGGTAATGTC TTGTATAACT	12300
CTATTGCCGT CATTGATGCA GATGGGGAAG TGCTGGGCGT TTATCGAAAG ACCCATATAC	12360
CAGATGACCA TTATTATCAA GAAAAATTCT ATTTACGCGC TGGTAACACT GGTTCGAAGG	12420
TCTGGAATAC TCGCTATGCT AAGATTGGTA TCGGTATCTG TTGGGATCAA TGGTTCCTG	12480
AAACAGCGCG CTGTCTTGCA TTGAATGGTG CTGAATTGCT CTTTATCCT ACAGCTATCG	12540
GTTCAGAGCC AATTTTGGAT ACAGATAGTT GTGGTCACTG GCAACGTAAT ATGCAAGGGC	12600
ACGCAGCAGC GAATATTGTT CCAGTCATCG CAGCCAATCG TTATGGTTTA GAGGAGGTTA	12660
CTCCTAGTGA GGAAAATGGC GGACAGAGCT CCAGTCTTGA CTTCTACGGT TCCTCCTTTA	12720
TGACGGATGA AACAGGAGCT ATTCTAGAAC GAGCTGAAAG ACAAGAAGAA GCTGTTCTGT	12780
TAGCTACTTA TGACCTAGAC AAGGGAGCAA GTGAACGCCT AAAGTGGGGC TTGTTTCGAG	12840

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ATAGAAGACC AGAAATGTAT AGACAAATTA CAGATTAGTG TGGGAGAAAT GAGAGATTCA	12900
TTCTGCTAGA CTAACCTCTT ATTAGTAACT ATAAGATACT ATGGCATCTA GTAAATCGAT	12960
TTTTATGATT CGCTATTCTT GTCTATTGAT TAGTCCGTAT TTTAAATAT TAGCAAAAAA	13020
GCAAATAGCA GTAACCTCTG TCTATTGCT TTTCTTTTTT ATAGAATATA TTTCTCAATA	13080
GCACGCGCAA CGCCGTCTTC TTCGTTGCTT GAGGTAACGG CATCCGCAAG AGATTTCATA	13140
TAATCGCTGG CATTTCCCAT TGCAATCCCA AGCCCTGCAA ACTGGAGCAT TTCGATATCG	13200
TTATTAGCAT CGCCCATGGC CATAATCTCT GAGGAATCAA TCTTCAAAAT CTCAGCTACT	13260
CGTGAAAGAG CAGTAGCCTT TGTCGTTCCA AGCGGCATTG CTTCATAAAT GACAGGCTGC	13320
GAACGAACCT CACTGAATCG TTGGCAAAGC TCTTCAGCAA AACGCTGCTC AAAATCGTCT	13380
GTTTGTTCTT TTGTTCTTAA ACACATACCT TGGAAATCC GGAACCTTCC ACTACTCGCT	13440
TCTTCAAGAG AAATTTTCACT CAGGTCTGAA AATACTAGTT TAGCATCATT TTCAATAACT	13500
TGATTGGGCT TGTACCCGAG AACAAAATAA TGTGACTCGT CAAAAAGTGT CAACTGAACA	13560
TCACTCTTTT CAGCAAGGTC ATAGAGGTAT TCGATGTCAG CTGGACTCAG TTCTTTCCAG	13620
TCAACTAGAC TCCAATCACT GGTCTGGTGA GTTGAACAAC CGTTGTTAAC AATAATATAT	13680
TCGTTCTGGA GGTCAAGCTC CAGTTTTTTG TAGTAGGGGA GGACACCGAA AAGGGGGCGA	13740
CCCGTACAGA GAACCAGTTT GACACCTTTT TCAATGGCTT TGTGAATAGC AGTAATGTGT	13800
GCTTGTTGGA TTTCTTTGGC TTCATTGAGG AGGGTGCCGT CCATATCCAA GGCTAGTAGT	13860
TTAATCATAG GTCTTCTCTT TTATCTTTCG TATTATTATA GCATATTTTG GAGAAGAAAT	13920
TGATAGAAAG CTTGAGACTA ATTGATTTTA TAGTTTAAGA TGTTTTGATG ACAATTCATG	13980
ATTTGAAGAG GATATTTTCG AAAGATATGC TATACTATGT TTGTCAATGT TGCAACTAGA	14040
CAAATTAATA AACCAACTTA ATATAATAGT TTTTTTGTA GTAGGTATGA GTAGCAGATT	14100
ACTCAACTAA TCTGAAGAAT AATGGAGGAA ATATATCATG ATTTTAATGA CAAAAATAT	14160
AAATCTAACA AATGAAGAAT TAGAGCTGAT ACAAGGTGGA GCAGATCCAT ATGGTAAAAA	14220
TCCTAATGGT AGGTACGATT GGGAAATAGA ACCAGTATTA ACTCTGCTGG TTCATGGATT	14280
TTGTCCCAGA GGCACCTATG ATTCAGGATA TATTGGAGGA GGTAATCATC TTGCAAAGG	14340
AAGTGCTGCG AGATTTTAAAG TAAAATTTAT TAGGAATATG AAGAAACAAG GGGAGAAAAC	14400
AGAGGATTTA ATATGAAAAA ACGAGCTATT CAAATTTTAC TAGCATTGTC CTTAATTTTT	14460
TACAAATCAA CTTGGTTTTG GAGGCTTTTC AATTATCTCG CAAAGCCCTA TCTACCAGCA	14520
AGTCGTGAAT TTTTTCAGAT TCTGCTTTTG ATGGAGAGCG GAGTTCTTTT CTTAGCGGTC	14580

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ATCTATCTAC TGGTTTTGTC AGGAAAGAAA ATTTTTCATT TCAAGTGGCA GCTGAGGTAC	14640
TTCATCTACC TTTTACTGGG CTACATCATT TCATATATGT CTGACTTCCT CTTTTCGTAT	14700
TTCATATCCC TGTCTTCAAA TCAGATTCTT TTGAATGAAA CGGTAGAAAT GATGGGAGA	14760
CAGGAGTTCC CTTATGTCTT GCTCATCGTT TGCTTCATCG CCCCTATTGC TGAGGAATTG	14820
ATTTATCGAG GtGTGCTTAT GACAACCTGT TGCAAAAAC CACCTTGTA CG	14872

(2) INFORMATION FOR SEQ ID NO: 73:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 10223 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 73:

CGTGCTATCG GTCTCAAAAC CAATCTGGTC GCTATGGTCA AATCCAGTTG GAAAATCCAT	60
TCTTCTTGGA GCCATCTGCT GGATTGCCAT CATCTCACC ACTCTTGTA TGCAGACCTT	120
TATCGGCATT TTCTAATACT CTTGAAAAT CTCTTCAAAAC CACGTCAACG TCGCCTTGCC	180
GTAGGTATAT GTTACTGACT TCGTCAGTTC TATCTGCAAC CTCAAAACGG TGTGAGCT	240
GACTTCGTCA GTTCTATCTG CAACCTCAAA ACGGTGTTTT GAGCTGACTT CGTCAGTCGT	300
ATCTACAACC TCAAAACAGT GTTTTGAGCT GACTTCGTCA GTTCTATCTG CAACCTCAAA	360
ACAGTGTTTT GAGCAGCCCG TGGCTAGTTT CCTAGTTTGC TCTTTGATTT TCATTGAGTA	420
TAACACAAAA GGTAGCCCAT CAGCTACCTT TTTCTATGC TTCTCAATC AAGCGAGTAT	480
GTTCTCTCTT GATACAGCGA TTCATCAGCA TATCATCACA TCCACCATCA CGCAAAATCT	540
CTTTCGCTTC TAAACTTTCA AGTCCTAGCT GTGCCAAAAA AATCTTGGA TCAGCTTTGA	600
GAAAATCAGC CGCCACATCG GGCAGAAATT CACTGCGACG ATAAACATTG ACAATATCTA	660
CAGGAAAAGG AATTTAGCG AGGCTAGCAT AAGCCTTTTC ACCCAAGATT TCGCCACCTG	720
CCGCCTTGGG ATTGACTGGG ATGATTTTAT AGCCCCGAGC CTGCATTTCC TTTGTTACTC	780
GATTGCTGGT TGTTCCTCA CGGTCAGACA AACCCACCAC AGCAAGGGTT TTAAGCTTG	840
CGAGATACTG ACGAATCAGC CCATCACTTG GATTGATAAA TTCTTGACTC ATAGAAATCC	900
TCCTTTTCA TCAGTATAGC ACATTTTGAA AAGGTTTGCA GAATTATACT ACAAAAAAGG	960
AGGACTAGCC CCCTTTTAT TTAGCCTCGT ACCAGGTTGC CCCTTCATTC TCATCTGCGA	1020
TAAGAGGAAC ACTGAGTTGA ATGGCTTCTT CCATGGTTTG TTTCACCAAT TTTTTCATCT	1080
CTACCAATTC AGATTTAGGC ACTTCAAGGA CGATTTCATC GTGCACTTGT AACAGCATCT	1140



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TAGTCTGATA ACCACCTGCA ACCAAGGCTT TATCCAGCTG AATCATGGCA ATCTTGAGAA	1200
TATCTGCTGC CGAACCCTGG ATAGGTGAGT TGATAGCAGT TCGCTCCGCA AAACCACGAA	1260
TATTGAAGTT GCGCGAATTG ATATCTGGCA ACTCACGGCG ACGCTTAAAG AGGCTCTCTA	1320
CATAGCCCTT ATCACGCGCC TCCCGCACCA CTTTCATCCAT GTAGTTTTTA ATACCTGGAA	1380
AACGTTCAAA GTAGGTATCA ATGTAGGCTT TGGCTTCCTT ACGACTAATT CCCAAATTAT	1440
<hr/>	
TAGACAAGCC AAAGTCTGAA ATCCCATAAA CCACTCCAAA GTTAAC TGCC TTGGCATTGC	1500
GACGGTCGTT TGCAGTCACA TCATCAGGAC GCTCAATGCC AAAGACCCGC ATGGCTGTCTG	1560
AAGTATGGAT ATCTGCCCCC TCTTGAAGG CCTTAATCAA GTGCTCATCC TTAGAAATAT	1620
GCGCCAAAAC GCGCAATTCA ATCTGTGAAT AGTCAGAGCT GAGTAGCACA CTATCCTCCC	1680
ACTCTGGCAC AAAAGCCTTC CGAATCAAGC GCCCCTGTTT CAATCGGGCA GGAATATTTT	1740
GCAAGTTTGG ATCCACACTA GACAAACGCC CGGTCTGGGT CAAATCTGTC ACATAGCGAG	1800
TATGAATCTT TCCATCAGCC AAAATCCAGT CCTGCAAGCC AATTACATAA GTAGATTGAA	1860
TCTTAGCAAT TTGACGGTAA TCCAGGATTT TCTTAACAAT CGGAGCAATA GGAGCGAGAC	1920
GCTCTAAAAC ATCCACTGCT GTCGAATAAC CTGTCTTGGT TTTCTTAGTG TATTCTAGAG	1980
GAAGTCCCAA TTTCTCAAAG AGAAGCACGC CCAACTGCTT AGGCGAGTTG ACATTAAACT	2040
CCTCACCAGC CAGCTCGTAA ATCTCTTGAG TCAGTTTTTC AATGACAAGC TCATTTTCAG	2100
CCTGCATCTC AAGCAAGGTC TCTTTCTTGA CCATAATCCC AGCAATTTCC ATCTTGCGCA	2160
GGACAAAAGC CAGAGGTTGC TCCATATCAT AAAGAAGCTC TAATTGCCCA TTTTCGCTGA	2220
GTTTTTCAAG TAAAATAGGC TCTGTTTCTA CCAAAACAGC AAGTTTACAA GCTAAGTGTT	2280
CCAAGAATTT CTCACGTTCA GGAATGGCCT TTTTAACACC CTTACCGTAG AAAGTTTCAT	2340
CATCAACCAA GTAAGTCTGA CCATAAAGAC TAGCGATGGT CGCAATTTCA TTGTCCTCCA	2400
CAGTCGAAAG GAGGTATTTA GCCAAACGGA TGTCAAAAGC AGGCGCCTGC AAATCCACAC	2460
CAAAACGTTG CAAAAGAACT TTAACCTTCT TAAAGTCATA AACTCTCAGA GATGTTTTTT	2520
CTAAGAAATC CTTGAAAATC GGGTCTTGCA ACAGCTCAAG CTTGTCTGTG GCATAGAGCT	2580
TATCCCCACA AGACCAGACA AATCCAACCA AATTATCCGT ATGGTAATTC TCACCAAAAA	2640
GCTCAAAGTG GAAGATAGAC TCTTCACTCA GCATATCTTG ACTGATTTGG TCAACAATAG	2700
TAAAATCCAA ACTCTCAGAC ACATCAGCTG ACGACACATT TAAAGCCTGC TTTAGCTGTT	2760
TGAAGCCCAT CTCATCGTAG AATTTCCCAA GATTTTCAAC ATCTGGACCA CTATAGACCA	2820
AGTCCTCTAA ACCAATCGCA ATCGGTGCCT TGGTATCAAT GGTGCTAGT GTTTTAGACA	2880

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AAAAGGCCTG TTCCTTGTC	TTGATGAGAT TTTCTTCAT	CTTAGAAGTC TTCATTCCAT	2940
CAATATTTTC ATAAATCCCC	TCAAGCGAAC CATGCTCCAG	CAAGAGCTTA ATACCCGTCT	3000
TTTCACCGAC TTTGGTCACC	CCAGGGATAT TATCCGACTT	ATCACCCTATG AGCGCCTTGA	3060
GATCGATAAA CTGAGCTGGT	GTGAGGCCCA TTTCTTCAT	GAGGTAATCT GGCCTAAAGG	3120
CCTCAAATC AGCCACACCT	TTCTTGAAA TTTCAACCAC	CGTATGCTCA TCCGTCAGCT	3180
GAATCAAATC CTTGTCCCCA	CTGACAATAG TAATATCAAA	ACCATCCTGC TCTGCTAGCT	3240
TATCCAGCGT CCCAATGATG	TCATCCGCCT CATACTGAGC	CAGATCATAG TGACGAATCC	3300
CCATATGATC CAGCAACTCA	CGAATGAAAG GAAATTGCTC	ACGAAACTCA TCAGGAGTCT	3360
TGGCCCGACC ACCCTTATAG	TCCGCATACA TCTCTGTCCG	GAAGGTCTGC TTTCCCGCAT	3420
CAAAAGCCAC CAAAATATGA	CTCGGCTCAA CCCGCTCCAA	TAAATGACTC AACATCAACT	3480
GAAAACCATA AATCGCATTG	GTATGCAAAC CAGCCACATT	CTTAAAACGG TCCAAC TGCT	3540
GATACAGCGC AAAAAACGCC	CGAAAAGCTA CAGAAGACCC	ATCAATCAAT AATAATTTTT	3600
TCTTATCCAT ACACCCATTA	TAAAGGAAAG AATCAAAAAA	TACCATTGGG AAGAGCTAGA	3660
GCAAGTATTT TTCAAATTTT	TTCCGAATAA ATAGATAGAG	CCAGAGAATT TAGTAAACCT	3720
AGATTTAAAA ATGTGCTATA	ATATAGTATA TTGAATCTAT	AATAGTACAC CTTGACTGCT	3780
AAAATATTTT TATAAATTAA	TTTGACTTTT CTGATAGAGT	TATTCACATC TTATTTCAAC	3840
TCACTATAGA AGGAGGAATA	GGAGGATTCT CAGACATCCG	GGCATCAGCC CAACTAATGA	3900
TTTGATTGCT AAGAAAATAT	TCAGCAATCC AGAAATCACT	TGTCAATTTA TTCGCGATAT	3960
GCTGGACTTG CCAGCAAAAA	ATGTGACCAT TTTGGAGGGA	AGCGATATTC ACGTATTACT	4020
CTCCATGCCT TACTCGGTGC	AGGATTTTTA TACCAGTATA	GACGTCTTGG CGGAGTTGGA	4080
TAACGGTACT CAAGTAATTA	TTGAGATTCA AGTCCATCAT	CAGAATTTTT TCATCAATCA	4140
CTTGTGGGCT TACCTGTGCA	GTCAGGTAA TCAAAATCTT	GAAAAAATTC GTCAGCGAGA	4200
AGGTGATACT CACTAGAGCT	ACAAACACAT CGCTCCTGTT	TACGCCATTG CTATCGTGGA	4260
TAGTAATTAT TTCTCAGATG	ACCTGGCTTT TCATAGCTTT	AGTATGCCCG AAGACACAAC	4320
AGGTGAGGTA TTGGCGATTA	CCAACAATGG ACAGGAAAAC	CATCTGGTTA AGATGGCATT	4380
CTTGGAATTA AAAAATACAG	AGAAACCAGC AAAGACAAGG	TTGCAAGCC ATGCTTGAG	4440
TTTTTCGGCA ACAAGCCCTT	TACCCAGCAA CCGCAACGAG	CCATTACCCA AGCAAATCAA	4500
CTGCTGGACT ACAAGAGCTG	GTCCGAGGAG GACAGGAAAA	TGTTTAGTCA ACTACATATG	4560
CGAGAAGAAC AAGTCTTGTT	AGCACAGGAC TATGCCTTGG	AAACTGCTAG GGCTGAAGGC	4620
CTTGAACAAG GACTAGAGCG	TGGGAAAGTT GAAGGAACGG	CAGAAAGGAA ACTTTTTGCC	4680

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TTCTAGACA TAGTACGCCA AGGTCTTCTG ACTTCTGAGG TTGCCAGCCA GCAATTAGGT	4740
ATGTCAGTAT CTGAATTTGA GGCAGTGTG TAAATGGCT CCATAATATC CATAGTGGGT	4800
AAATCCCCTA TGGATATTAT GGAGCCTATT TTGTGTAGAA AAAAAGTCCC ATATGACCTA	4860
TAATGAAAAG CGACAAAACA ACTCATTAGA AAGAATCATA TGGAAACAATT ACATTTTATC	4920
ACAAAATTAC TAGACATTAA AGACCCTAAT GTCCAGATTT TAAACATCAT CAATAAGGAT	4980
ACACACAAGG AAATCATCGC CAAACTGGAC TACGACGCCC CATCTTGCCC TGAGTGCGGA	5040
AACCAATTGA AGAAATATGA CTTTCAAAA CTTTCTAAAA TTCCTTATCT TGAAACGACT	5100
GGTATGCCTA CAAGAATTCT CTTAGAAAG CGTCGATTCA AGTGCTATCA CTGTTCAAAA	5160
ATGATGGTCG CTGAACTTC TGATGACGTA CAGTCATATT TCTTCTCTTT TTATTATATC	5220
ACAGTTTAA ATCTAGCTTT ACTAGATTCA CCGCTACTAT CTATTTATTC GGAAAAAGA	5280
CGAAAAAACC TGAGAATCAT CTCAGGCTTG GTCATTAAAT TTTTCTCTCA ATATCGAAAA	5340
GTGGAGAAAG TGGTCGTTT TCATGAATAC GTACGATAGC ATCCCCTAGG AGATGAGCGA	5400
TTGAAATCTG CTCAATCTTA TCAATCAAAC GCTCTTCTGG CAGATAGATG GTATCCAAAA	5460
CAACCAATTT CTTAATAGCT GATTTTGGG TATTGTCCGT AGCAGGACCA GAAAGAACTG	5520
GGTGCGTACA GCTTGATAG ACTTCAACAG CACCAGCTTC CGCAAGAGCA TCTGCCGCAT	5580
GACAAATCGT TCCAGCGGTA TCAATCATAT CATCAATCAA GATACAAGTC TTGCCTTCAA	5640
CCTTACCGAT GATATTCATA ACTTCACTAG TATTCATCTT ATCAACGCTA CGACGTTTAT	5700
CAATAATAGC GATAGATGTT TTCAAAAATT CTGCCAAGTT ACGAGCACCA GTCACCCCTC	5760
CATGGTCCGG GCTGACAACC ACATAGTCAG AACCAACCAT ACCACGACGC TCAAAATAAT	5820
CTGCAATCAG AGGAGCACCC ATCAAATGAT CCACAGGAAT ATCAAAGAAT CCTTGAATTT	5880
GCGCAGCATG CAAGTCGATG GTCAATAAAC GATCCACTCC AGCTACTTCA AGCATATTTG	5940
CGACAAGTTT TGAAGTGATT GGCTCACGCG CTCTCGCCTT TCTATCCTGA CGTGATACCC	6000
CATAGTAAGG CATGACAACA TTGACAGATT CTGCACTCGC ACGCTTCAAA GCATCTACCA	6060
TAATCAAAAT TTCAAGCAGA TTGTCATTTA CAGGCGAACT AGTTGATTGT AAGATAAAGA	6120
CGTGTTCCTC ACGGATTGAT TCTTCAATGT TGACCTGAAT CTCTCCATCT GAAAATTGGC	6180
GAACACTTGA TTTCCCAAC TCTATCCAA TCTCTGCGC CACACGTTCT GCCAATCTTT	6240
TATTAGAAGA AAGGGCAAAC AGCTTTAAAT CAGAAAAAGA CATGATTTCC TCCGTATAT	6300
ATGTATAACT TGTGCTTTTC ACAAGATTTT CCATCTACCA TTGTAGCGCT TTTTGCCTA	6360
TTTTTCAATC AAAAATAAAA GAAGGGCACC ATATTGTGAC CCTTGCATCA TTCTTTTGAA	6420

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AAATATTCTA GGTCAATCAAC TCATTGTGTT TCTCAACAAA GCAATAAGCA TGATAAAAAAC	6480
CATAGAGAGC AATAGCCGTA ACCACTGGAA TCGCTAAAGG CAACTCTGTT TCCAACCTCA	6540
CAAAAGGAGA GTTAAACAAG AAGTGAGTTC CCAAGGCTAA ACCTAGAAAA ATAAGGCCCT	6600
GTTTCTTGCC AACCTTCTGT CCTTTATAGG CTCTGTAAAG CAAGTAAACA CCTACTACAG	6660
CTAGACCTGA AAAAGTCCAG TGAGAGGCAA TTCCTGAGAT GATACGCTCT AAAATTGCGG	6720
AAATAGTAAA GTCAAAGCCC TCTGGCAAAT CCGTACGAAT ATAACCAATA TCCTTAATCA	6780
TTTGAATCC CAAACCGGAA GCAATTCCAA GTAAAAACAA AGATTTTAAT TTTGCGACAG	6840
GAATCAAAGC CAAAACAAAA ACAAGTGACA ATAATTTCAA GGGTCTTCT ACCAAAGGAG	6900
CCGCAATAGC ACTTTCAAAG GCATTTAAAA ATGGACTATC TGGGAAAAGA ACCCCCAGTA	6960
AATCATGGAT ATAAGTATTA GCAAACTAG ACAACCAGCC TGAAAGGAAC ATCCCTCCCA	7020
ATAAAGACAG AATCAAAACC TTCTTTGGCA ATTCCCATTT TCCCAATAC GGAAGAGAAA	7080
ATAAAGAGCC GGAATCATGT AAAAGAGAGC TAGAAAGATA GAAACTCCCA TTAGTCCATA	7140
TTCCGCACCT GACCTCGAAC CGTCCGTATA GTAGATGGTT TCATACTGTA AACCAATACA	7200
TAGCAATAAA ATAAAAATAA ATAAATATT GCTTTTCTTC ATACACTTTC TTTCTAAATG	7260
AAGTATTTAT AATCTACGA CTGTCATACT TCCTGTATCA ACATTGTAAA TGGCACCAGA	7320
GATAATGACA TCCTCTGGTA TTAGGGGAGA CTCGATAAGC AGTTGCATAT CCTCGCGTAC	7380
ACTCTCTTCT ATATCTTGA AGGGCAAGAA GTCCTGGTCT GACACATCGA CACCCAATTC	7440
TTCTTTCAAA TACTCCTGAA AAGGTTTATT TTCAAAGGTC TGAGCACCAC AGTCTGTATG	7500
ATGCAATACC ACAATTTCTC TTGTCCCAT TTGTTGCTCG GAAATAACTA GAGAACGAAT	7560
CATATCCTCA GTCACCTGAC CACCTGCATT CCGCAAAATA TGAGCATCCC CAAGTGCCAA	7620
ACCTAGAGCT TGGCAACGT GCAAACGTGA GTCCATACAG GTCACAATGG CTACTCTGGT	7680
TTTAGGTTTA AGTGGCAGAT TTAAGTGCCC ATGTAGGGCA ACATAAGCCT GATTGGCTTG	7740
CATAAACTGT TCAAAATACG ACACGATTCC CTCCTTGAAA ATTTGATAGT CAAATATTTT	7800
TCCTATCTTA TCATTTTAA GAGAATTTGT CACGGATTAT GCAAAGACCT TTTTCAAGAC	7860
TTCTGAATC GTTGTACGC CAATGACCTG AATTTCTTA GGCAGAGTGA TTCCTGTCAA	7920
GGAATTTCTTA GGTACATAAA TCTTAGTAAA GCCCAGTTTA GCAGCTTCGT TGATGCGTTG	7980
CTCAATACGA TTCACGCGCC GAATCTCTCC TGTCAGCCCC AGTTCTCCGA CAAAACATTC	8040
CTGAGGATTA GTTGGCTTGT CTTGTAGCT CGAAGCAATA GCAACTGCAA CAGCCAAGTC	8100
AATCGCAGGT TCATCCAATT TAACACCACC AGCAGATTTG AGATAGGCAT CCTGATTTTG	8160
CAAGAGAAGC CCTGCCCGTT TTTCCAAAAC AGCCATAATC AAGCTAGCAC GGTAAAAATC	8220

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AAGTCCTGTC GTAGTAGGCT TGGCATTTC AAACATGGTC GGTGTTACCA AAGCCTGAAC 8280  
CTCCGCCAAA ATCGGACGCG TCCCTTCCAT GGTACAAACG ATGGAGGAAC CAGTCGCCCC 8340  
ATCCAAACGC TCTTCTAGGA AAACCTGACT CGGATTGAGT ACCTCAACCA AGCCGCCCGA 8400  
CTGCATCTCA AAAATCCCAA TCTCATTAGT GGAACCAAAA CGATTTTGA CCGCTCTCAA 8460  
AATACGAAAG GTGTGGTGAC GCTCCCTTC AAAGTAAAGC ACCGTATCCA CCATATGCTC 8520  
CAACATACGA GGCCAGCCA AGGTTCTTC TTTGGTCACA TGACCTACGA TAAAGATGGC 8580  
AATGTTATTG GTCTGGCCA ACTGCATGAG TTCAGCGGTC ACTTCACGCA CCTGAGAAAC 8640  
AGACCCCTGC ACCCTGAAA TCTCAGGAGA CATGATGGTC TGGATGGAAT CAATAATGAG 8700  
AAAGTCTGGC TGGATACGCT CCACTTCTGC ACGAACACTC TGCATATTGG TCTCTGCATA 8760  
GAGATAAAAC TCACTATCAA TATCACCTAA GCGCTCTGCA CGTAGTTTAA TCTGCTGGGC 8820  
AGACTCCTCC CCACTGACAT AGAGAACTGT CCCCCTTGG GACAACTGGG TTGAGACTTG 8880  
TAGGAGAAGA GTTGATTTC CAATCCCAGG ATCCCCACCG ATAAGGACGA GACTTCTGG 8940  
TACCACTCCG CCTCCAAGCA CACGGTTGAA TTCCTCCATC TCCGTCTTGG TTCGATTGAC 9000  
ATTGATGGAA GTCACCTCAG CTAGTTTCAT GGGCTTGGTT TTCTCACCTG TCAAGGACAC 9060  
ACGCGCATTC TTAACCTCGG CAACCTCAAC CTCTCCACA AAAGAAGACC AAGACCCACA 9120  
GTTGGGGCAA CGTCCCAGAT ATTTAGGGGA ATTATACCCA CAATTTTGAC ATACAAATGT 9180  
CGCTTTTTTC TTTGCGATGA CAAACCTCTT TCTATATCTC TAACTCACAC TCAATCACTT 9240  
GGCAAAAATC AATCTTCTCA TTTGGCACAA ACTGGCGCAT GAGCATTGCA TGAGCAACAA 9300  
CTACCACAGT CTGATGTTCT CGATACTTAG ACATACATTC TAGAAACCGA GACTTCATTT 9360  
CCGTAGCTGT CTCATATTGA ATAGGACTAT TAGGAAGCAA CTCCCCCTTG TTTCTAAAA 9420  
ACAGTCTTCT AGCTGTTTCA AAGTTTCTA TTCCTGTTTT ATAGACCTGC CATTGATGTA 9480  
ATAAAGGCTC TACTCTTAAA GGAAGACCCG TAGCACAGAC CACATACGAA GCCGTTTCTA 9540  
AAGCTCTTGT GACTGCAGAA GATACGATTA TTTGAGCTGA CGAGAGTAAA GGATTTTTC 9600  
TCAATTTCTG GACTTGCTGC CGTCCCATCT CAGACAAGGG TGCCAAATCT ATCCCAAATC 9660  
CTATATAAGA ACGTCTCTCT AACTCAGGT AATCTGGCTC CCCATGACGT ACAAAGATAA 9720  
TCTTCATTCT AGTGCCCTGT CGATCCAAAT CCACCAGTTC GAACGCCATC AGCTGCATCT 9780  
CCATCTGCAA TTAAGAAAGT AGCAAAAACA GCCTGGACAA TACGCTCCCC AACTTCAAGA 9840  
ACAACCTCTT GGTCTGTGAT ATTCTTCATC TCGCAAAAAA TATGCCCTTC ATTTCCAGGA 9900  
TTTCATAAT AATCCCCATC AATGACTCCA ACTGAGTTAA TTAACCAAA GCCCTTCTTA 9960

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CGAGGATTTG AAGAACGATC ATAGAGGTAG AGAACCTCAG TCGGCTGCAT ATAAGCCTTA	10020
ACCCCTGTCG GAACCAAGAC AATCTCTCCT GGCGCAACAA CTGTACGCAC AGCAACCTTT	10080
AAGTCGTAAC CAGTCGCATG CGCTGTCTCA CGCTTGGGCA ATAAATTTTC ATCTGTAAAA	10140
CTCGAAACCA ATTCAAAACC ACGAATTTTC ATAATTTTCT CTTTCTATT ATCATTATT	10200
CTAGATTATT CTATACTTAT TTA	10223

## (2) INFORMATION FOR SEQ ID NO: 74:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 16535 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 74:

TGGTTCTGTC CTTATCGGCG CCTGTCTTG CTGCCATCG CTACACCAAC TATCTCATCC	60
GACGAAAGTA CACCAACCAC TAACGAACCC AACAAACAGAA ATACAACCAC CCTTGCCCAA	120
CCTCTTACTG ATACAGCAGC TGGCTCTGGT AAGAACGAAA GTGATAATTC TTCACCTGGA	180
AATGCAAACG CTTCCCTAGA GAAAACAGAA GAAAACCTG CTGCAAGCCC AGCCGATCCA	240
GCACCACAAA CTGGACAAGA TCGTTCAAGT GAGCCAACTA CTTCTACTAG TCCAGTAACA	300
ACTGAAACTA AGGCAGAAGA GCCCATCGAA GATAACTACT TCCGTATCCA TGTCAAAAAA	360
CTTCTGAAG AAAACAAGGA TGCTCAAGGA CTATGGACTT GGGACGATGT TGAAAAACCA	420
TCTGAAAAC TGGCAAACGG AGCTTTGTCC TTCAAGGATG CCAAGAAAGA TGACTACGGC	480
TATTACCTAG ATGTCAAATT AAAGGGAGAA CAAGCCAAGA AAATTAGCTT CCTCATCAAC	540
AATACAGCTG GAAAAAATCT AACCGGCGAT AAATCTGTAG AAAAATACT TCCAAAAATG	600
AACGAAGCTT GGTAGACCA AGATTACAAG GTTTTCTCTT ACGAGCCACA GCCTGCAGGA	660
ACTGTTGCG TCAACTACTA CCGCACAGAT GGCAACTATG ACAAGAAATC TCTCTGGTAC	720
TGGGGAGATG TGAAAAATCC AAGTAGCGCT CAATGGCCTG ACGGAACAGA CTTTACGGCT	780
ACAGGCAAAT ATGGCCGCTA TATCGACATT CCTCTTAATG AAGCCGCAAG AGAATTTGGA	840
TTTTTATTAC TAGATGAGAG CAAACAAGGA GACGACGTGA AAATCCGTAA AGAAAAATTAT	900
AAGTTCACAG ATTTGAAAAA TCATAGCCAA ATTTTCCTAA AAGACGATGA TGAATCGATT	960
TACACAAATC CATACTATGT CCATGATATC CGTATGACAG GAGCCCAACA CGTAGGCACT	1020
TCTAGCATTG AAAGTAGCTT TTCAACACTT GTCGGTGCTA AAAAAGAAGA TATCCTCAAA	1080
CACTCCAACA TCACATAATCA CCTAGGAAAC AAGGTAAC TAACCGATGT TGCAATCGAT	1140

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GAAGCTGGTA AGAAAGTGAC CTACAGCGGA GATTTCTCTG ACACAAAACA TCCTTATACT	1200
GTAGCTACA ATTCCGACCA ATTCCTACC AAAACAAGCT GGCGCCTGAA AGATGAGACA	1260
TACAGCTATG ATGGCAAAC GGGAGCTGAC CTAAGAAG AAGGAAAACA AGTTGATTG	1320
ACCCTTTGGT CACCAAGTGC TGATAAGGTT TCTGTTGTTG TCTACGACAA GAATGACCCT	1380
GACAAAGTAG TTGGAAGTGT CGCTCTTGAA AAAGGGGAAA GAGGAACTTG GAAACAACT	1440
CTAGACAGCA CAAACAACT CGGAATCACA GATTTCACTG GCTACTATTA TCAATACCA	1500
ATCGAGCGTC AAGGTAAAAC TGTTCTTGCA CTCGATCCTT ACGCTAAATC TCTTGCTGCT	1560
TGGAATAGCG ACGATTCCAA GATTGACGAT GCCCATAAAG TGGCTAAAGC CGCCTTTGTA	1620
GATCCAGCTA AACTCGGACC TCAAGACTTG ACTTATGGTA AGATTCACAA TTTCAAGACT	1680
CGTGAAGACG CCGTTATCTA CGAAGCTCAT GTGCGTGATT TCACITCAGA TCCTGCCATT	1740
GCAAAAGACT TGACCAAACC ATTTGGGACT TTTGAAGCCT TCATTGAAAA ACTAGACTAT	1800
CTCAAAGACT TGGGTGTAAC CCATATCCAG CTCCTTCCAG TCTTGCTTA CTACTTTGTC	1860
AATGAATTGA AAAACCATGA ACGCTTGCT GACTACGCTT CAAGCAACAG CAACTACAAC	1920
TGGGGATATG ACCCTCAAAA CTACTTCTCC TTGACTGGTA TGTACTCAAG CGATCCTAAG	1980
AATCCAGAAA AACGAATCGC AGAATTTAAA AACCTCATCA ACGAAATCCA CAAACGTGGT	2040
ATGGGAGCTA TCCTAGATGT CGTTTATAAC CACACAGCCA AAGTCGATCT CTTTGAAGAT	2100
TTGGAACCAA ACTACTACCA CTTTATGGAT GCCGATGGCA CACCTCGAAC TAGCTTTGGT	2160
GGTGGACGCT TGGGGACAAC CCACCATATG ACCAAACGGC TCCTAATTGA CTCTATCAAA	2220
TACCTAGTTG ATACCTACAA AGTGGATGGC TTCCGTTTCG ATATGATGGG AGACCATGAC	2280
GCCGCTTCTA TCGAAGAAGC TTACAAGGCT GCACGCGCCC TCAATCCAAA CCTCATCATG	2340
CTTGGTGAAG GTTGGAGAAC CTATGCCGGT GATGAAAACA TGCCTACTAA AGCTGCTGAC	2400
CAAGATTGGA TGAACATAC CGATACTGTC GCTGTCTTTT CAGATGACAT CCGTAACAAC	2460
CTCAAATCTG GTTATCCAAA CGAAGGTCAA CTTGCCTTTA TCACAGGTGG CAAGCGTGAT	2520
GTCAACACCA TCTTTAAAAA TCTCATTGCT CAACCAACTA ACTTTGAAGC TGACAGCCCT	2580
GGAGATGTCA TCCAATACAT CGCAGCCCAT GATAACTTGA CCCTCTTTGA CATCATTGCC	2640
CAGTCTATCA AAAAAGACCC AAGCAAGGCT GAGAACTATG CTGAAATCCA CCGTCGTTTA	2700
CGACTTGAA ATCTCATGGT CTTGACAGCT CAAGGAAGCT CATTATCCA CTCCGCTCAG	2760
GAATATGGAC GACTAAACA ATTCCGTGAC CCAGCTACA AGACTCCAGT AGCAGAGGAT	2820
AAGTTCCAA ACAAATCTCA CTTGTTGCGT GATAAGGACG GCAACCCATT TGAATATCCT	2880

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TACTTCATCC ATGACTCTTA CGATTCTAGT GATGCAGTCA ACAAGTTTGA CTGGACTAAG	2940
GCTACAGATG GTAAAGCTTA TCCTGAAAAT GTCAAGAGCC GTGACTATAT GAAAGGTTTG	3000
ATTGCCCTTC GTCAATCTAC AGATGCCTTC CGACTTAAGA GTCTTCAAGA TATCAAAGAC	3060
CGTGTCCACC TCATCACTGT CCCAGGCCAA AATGGTGTGG AAAAAGAGGA TGTAGTGATT	3120
GGCTACCAAA TCACTGCTCC AAACGGCGAT ATCTACGCAG TCTTTGTCAA TGCGGATGAA	3180
AAAGCTCGCG AATTTAATTT GGGAACTGCC TTTGCACATC TAAGAAATGC GGAAGTTTGT	3240
GCAGATGAAA ACCAAGCAGG ACCAGTCGGA ATTGCCAACC CGAAAGGACT TGAATGGACT	3300
GAAAAAGGCT TGAAATTGAA TGCCCTTACA GCTACTGTTC TTCGAGTCTC TCAAAATGGA	3360
ACTAGCCATG AGTCAACTGC AGAAGAGAAA CCAGACTCAA CCCCTTCCAA GCCTGAACAT	3420
CAAAATGAAG CTCTCACCC TGCACATCAA GACCCAGCTC CAGAAGCTAG ACCTGATTCT	3480
ACTAAACCAG ATGCCAAAGT AGCTGATGCG GAAAATAAAC CTAGCCAAGC TACAGCTGAT	3540
TCACAAGCTG AACCAACCAG ACAAGAAGCA CAAGCATCAT CTGTAAAAGA AGCGGTTCTGA	3600
AACGAATCGG TAGAAAACTC TAGCAAGGAA AATATACCTG CAACCCCAAG TAAACAAGCT	3660
GAACTTCCAA ATACAGGAAT CAAAAACGAA AACAACTCC TATTTGCAGG AATCAGCCTC	3720
CTTGCGCTCC TTGGTCTCGG TTTCTTACTA AAAAATAAAA AAGAGAATA AACTAGCCCT	3780
CCTATAGAAA AATCCCCCAA GCATTATAGC TCGGGGGATT AATTTTGTG CAATATTTGT	3840
TGTCCTAATA AACTTGATTA GGATTTTITA TTAAGCCTCT TTCATAGCAA AATAAGCTCG	3900
TACTTTGGGT GCAACTTGTG TTCCGAAGAG TTCAATAGCT CTCAGAACC TGGTCATGAGG	3960
CATAGAACCA AGCGGTAGAT GAAGCATGAA GCGGTCCAAT CCTAAATCCT CTATCATGCG	4020
AATCAATTTT TCGGCCACCT GATCTGGATT GCCAACAAAC ATGGCGCCAT TTGGCCCTAC	4080
CTGCTCCAAA TATTGCTCAT AACGCAATTC CTGCCAGTGC GGACGGTCTT TGGAAATAGC	4140
ATCCACCACT TGCTTAGTCG GATGGAATA ATCTTTCACC GCCTGCTCAC CATCTTCCGC	4200
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CCAATCTCAC GATAAGCCTG AATCAACTTT TTAATAAAC GTGGATTACC ACCAATAATA	4320
GCATATACAA TCGGTAGACC AGCCTGAGCA ATCTTCACTG TTGATTGAC ATGACCACCT	4380
GTAGCTATCC ACAAGGGCAA TTTGTCTGA ACTGGACGAG GATAAACTTC TTTACCAGCA	4440
ATCGTTTGAG TCAATCGACC TTGCCAGTCT AACTTGGTCT TTTCAATTGAC TAACTGAAGC	4500
AAGTCTAATT TCTCATCAA AAGAGAGTCG TAGTCTTTCA AGTCATAACC AAACAGAGGG	4560
AAAGATTCCG TGAAAGAGCC CCTTCCAGCC ATAATCTCCG ATCGTCCATT TGACAAAGCA	4620
TCGATAGTGG CATACTGTTG GAACAAACGA ATCGGGTCCA TGCTTGACAG AATGCTGACT	4680



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GCACTGGTCA AACGGATTTT CTGGGTATTG ACTGCCCCAG CGGCCAGAAC AATCTCTGGG	4740
GCTGATACTG CAAAATCCGC CCGATGGTGC TCACCAATCC CATATACATC CAAACCAACC	4800
TTGTCAGCCA GCTCAATCTC TGCCACCAAC TGGCGAATGC GTTCAGCATG ACTGTAAGTT	4860
TGTCCAGTCC CTTCAAGCTC CGTTATTTCC CCAAATGTTG AAATTCCCAA TTCTACCATT	4920
GTGATTCTCC TTATCTATCT CTGTACTTCA ATTTGAAAAA TTATTCTAAC ACGAATCTTG	4980
AGTACAAGCA ACCGATTTGC TCATTAGAAA AAGCCTAGAT AACTAGACTT TTTTAGCTTA	5040
TTCTACCGTT ACTGACTTGG CAAGGTTACG TGGTTTGTCC ACATCGAGGC CACGGTGGAG	5100
GGTTGCAAAG TAAGCGACTA ATTGCGTTGG TACGACCATT GAAATTGGTG AGAGGTATGG	5160
ATGTACGGTC GTAAGGACGA TATCGTCGGT ATCTTTGGCT ACATTCTCTT CTGCGATAGT	5220
GAGGACTTTG GCACCACGGG CTGCGACCTC TTGGATATTT CCACGAGTAT GATTGGCAAG	5280
AACTGGATCT GACAAGAGAG CCAAAACAGG CGTTCCTTCT TCAATCAAGG CAATGGTTCC	5340
GTGCTTGAGT TCTCCTGCAG CAAAGCCTTC ACACTGGATA TAAGAAATCT CTTTGAGTTT	5400
GAGACTTGCT TCCATGGCTA CGTAGTAATC TTGACCAGT CCGATGTAAA AGGCGTTACG	5460
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TTGATAGAC TGAGCTACGA TTGACAATTC ATGAACCAGG TCAAAGGCTT GCGCTTTAGC	5580
ATTACCATTT GCTTCTCCGA CTGCTTTTGC AAGGAAGGCA AGGGCTGCGA TTTGCGCTGT	5640
ATAGGCTTTA GTTGATGCCA CGGCAATTC AGGACCTGCG TGAAGGAGCA TGGTATAGTT	5700
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GATGAAGAGT GGTTCCTTGC TGAGAAGTGG CATACCGTAG CCCCCTCAG ATGAGATTCC	5880
AAGTTCAACT GGTGTATCTG TCAATTCTTC CAACATTTTC TTAGAAGCAA ATCCTGCATG	5940
GTAAGATGTT CCAGCTGCAA GGATGTAGAT GCGGTCTGCG TCTTGAACAG CCTTAATGAT	6000
ATCTGGGTCT ACGACAACCT GACCAGCCTC ATCTGTGTAG GCTTGGATGA GTTTCCGCAT	6060
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ATCTGACAAG TCAAGTTCAG CAGTGTAGCT AGCAGCCTCA CGACGATTC CATCATAGTC	6180
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TTGGTTAGTT TCACGAATCA TAGCCATGGC GTCTGACCAG ACCATGTTAT AGCCTTCTCC	6300
AAGACCAATC AAAAGTGGTG ATTTATTTTT AGCTACGTAG ATGACTTCAG GATCTGTGA	6360
GTCAACCAAG GCAAAGGCAT AAGAACCACG GATGATGTGA AGGGCTTTTT TGAAGGCTTC	6420

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AAGAACTGAG AGCCCTTCTT CTTCCGCAAA TTTTCCAATC AAATGAACGG CTATTTTCAGT	6480
ATCTGTCTGC CCCTTGAAGT GGTGACCTGC AAGGTATTCT TCCTTGATTT CAAGATAGTT	6540
CTCAATCACC CCATTATGCA CCAAGACAAA ACGTTCCGTC TCAGAGCGGT GTGGGTGAGC	6600
ATTGTCTCA GTTGGTTTTT CGTGAGTAGC CCAACGAGTA TGTCCGATAC CAGTTGTTCC	6660
CTCAACACCA GCTGTCTTGG CAGACAATTC TGCAATACGA CCAACCGCCT TCACCAAATG	6720
GTTATCAGCA CCATCTAGGA CAAAAATTCC CGCAGAATCA TAGCCACGGT ATTCAAGCTT	6780
TTCAAGCCCT TGAATCAAAA TATCAGTTGC ATTTGTGTTT CCAACAACAC CAACAATTCC	6840
ACACATAGTA TATACGACAC AGGCAAGCTG TGCTTTCTCC TTAATAATTGG TATAGTCTAA	6900
TTTCATCTTT ATAGAATCAG CAAAAACAGT ATATACTTGT TTCTTTCACT TGTCAAGAGT	6960
AAAAATTGGT ATAGTTCAAA TTAAGCTCCT GTAAGCATAA AAACCTCTGAC CGATTGGGAT	7020
AATCAGTCAG AGTCCTTTTT AAAATCCATT ATTATCGCTT AATCTTTGA ACCAGTGGCC	7080
TGATTCTTC AGACGACGTT CTTGCGTTTC CAAGTCTAAT TCGACCAAAC CATAGCGATT	7140
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GTTGGCACCA TCTTCAATGG CACGGTGAAG TTCACGAAGA TGACCTTTTA CAAAGTCAAT	7260
ACGGTAATCA TCTTGAATCA TTCCATCTTG ACGGAATTTT TCTTCCCCTT CAACACCCAT	7320
ACCATTCTCA GTCAACATCC ACTCAATATT GCCATAATTT TCCTTGATAT TTTGGGCGAT	7380
GTCATAAATC CCTTGCTCAT AAATCTCCCA ACCACGGTGA GAATTGATTT TACGTCCAGG	7440
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TCGAGGAGCC ATAACACGCA AAGGTGATA GTAGTTCACA CCAAGGAAGT CCACCGTATT	7560
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CTTAACAGCC CGGCTGCTGG CCAATTGTGT ATGATAGGCT ACCTTAACAG CTGCCTCTGC	7860
ATCCACCTTA TGTGGATAAT GGGCATCATA AAAATAACCA AATTCTACAG GAACGATGGG	7920
CTCGTTAAAG GTAATCCATT GATCCACTAA ATCTCCATAA GTCTCAAAAC AAAAACGAGC	7980
ATAGTCTTCA TAGGCTGAGA CTGTCGCCTT ATTTTCCCAA CCATCACCAT CCTCTTGAAG	8040
GGCAAAAGGT AAATCAAAAT GATAGAGATT GACTAACAGA CGAATTCCTT TAGCCTTAAT	8100
AGCCTCAAAG ACCTTACGAT AAAAATCCAC ACCTTGAGTG TTGACTTTTC CACAGCCTTG	8160
TGGAAAAATC CGTGACCACT GAATAGAAGT CCGAAAGGCT GTGTGACCAG TCTCTAACAA	8220

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AAGCTCAATA TCCCGCTCCC AATTTTCATA AAAAGTCGAT GTCTTATCTG AACCAATCCC	8280
ATTATAGTAA CGATTTGGCT CCACTTGGA CCAGTAATCC CAGAGATTGT CTCCCTTACC	8340
GTCACCAGCT ACACGTCCTT CTGTCTGCGG TCCAGAAGTA GAGGATCCCC AGACAAAATC	8400
CTTTGGAAAT CTTAGCATAC ATTTACCTCT TTATCTACTC ATTTCTCCCA TTATACAGAA	8460
AAAACAAGGT AAAAAGTACT TACATTTTTT CTTTGTTTTT CTTCTGATTA TAGTTTTTAT	8520
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CGGATTGGAA GACCAATCAA GTCACATCG CTAAATTTAA CACCGACACG TTCGTTACGG	8700
TCATCTGTCA AGACTTCATA ACCAGCTCCC ATCAAGCTTG CTTCAAGTTT TTCTGTCAAG	8760
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CATCCCATGA TGATTGGCAC AGCAGCACCA TTTTCATCCA AGACATCTGC TCCCATGCTT	9000
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CCGACAACCTG CATTGCGAAC ATCTGTGACC TTACGATCTG CAATAATTTT AATATTCTCT	9240
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TCGTTTGTG CCATTTCTAA GTTAGCTGCA TAGCTAGACT CACTTGAGTA AGCAATGCTA	9600
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CCAATAATAG CCTTGAAGTC TAAACCACTA CGAGTGAAAA TACGCTCATA GGCTGCTTTG	9840
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GGCTGAATTT	GATAAAGGTT	GAGTGGCAAT	TGCTTGTAAG	ATTTAACAGA	ATCACGGACA	10020
ATAGCTGTAA	AGGTTTCTTC	GTGAGTTGGA	CCTAAGATAA	AGTCTGATTT	TTACACGGTTT	10080
TTTAGTTTGT	AAAGGTCTTC	ACCATAGGTT	TCGTAACGAC	CTGATTACAG	CCACAATTCT	10140
GCACTAAGAA	GGGCTGGAGC	CAACATCTCA	ACAGCACCAA	TCTTTTCGAA	TTCTTGGCGC	10200
ATGATGTTTT	TAGCTTTTTC	AATCACACGG	TTGGCAAGTG	GTAATAAGA	ATAAACACCT	10260
GCTGAAACTT	GGCGAACATA	ACCAGCACGC	AACATAAGAG	CATGGCTGAT	AACTTGAGCA	10320
TCGCTTGGCA	TTTCGCGAAG	CGTTGGGATA	GGCATTTTAC	TTTGTTTCAT	AATATTCCTC	10380
GATTATCTAA	AAAAGAGTCG	CATAATGTCA	TTCCAAGTCA	CAGCAATCAT	CAAGACAACC	10440
ATGATGACCA	CTCCGGCCAA	GGTGACATAG	GTTTCAATTT	CTTGTTTCAA	TGGTTTGGCG	10500
CGGATGGCTT	CTAGGATATT	GAGCACAACT	TTACCACCAT	CCAAGGCTGG	AATCGGAATA	10560
AGATTAAAAA	TCCCAATATT	GATGGAAATC	ATTGCCAAGA	AGTACAAGAT	ATTTTCAATT	10620
CCATTTTATG	CAGCATCACT	ACTTGCCTTA	AAGATAGCAA	CAGGTCCACC	CAACTTGTTT	10680
AAATCTGGTT	GGAAAATCAG	ATTTTTCAGA	GCTGAGAGAA	TTCCGAGAGC	TGAGTCAGCA	10740
GCAGTTGTAA	AACCACCTAC	AAACATGGAT	AGAAAATCTG	ACTTAACCCC	CGGTTGAACA	10800
CCTAGAAGGT	AACGACCTTG	ACTATCTTTG	GGTGTAAACAG	TGACTTGTTT	GTCACCTCCC	10860
TTTTTCAGAA	TAGTCACATC	CAAAGTCGGT	GCCGCTTTAT	CTTTGGTTTC	TGTTTCCACA	10920
GCTTGGATCA	AGCTTTCCCA	GTTGCTAACC	TCATGTGAGC	CAATCTTGGT	AATTTGTGCC	10980
ATTTCTGGTA	CTCCTACCTT	GGCCAAGGCA	CCTTGGGGCA	TGATATGGAA	CTGATTGGTA	11040
TCAACATCTC	TGACACCACC	CTGCATAAAG	ATTAAAACCC	AAAAACAAC	GACACCTAAG	11100
ATAAAATTGT	TCATAGGACC	TGCAAAATTG	GTAATCAGTT	TGCCCCAGAT	AGTCGCATTT	11160
TGATATTGAA	CATCTAAAGG	TGCAATCCGA	ACCTCAGTAC	CATCTGCTTC	CACAACCGTT	11220
GCATCGTGAT	CCACTGCAAA	TGTTTTTTCT	TCTTCCAGAA	CCAATCCTTT	GATAAAGAGC	11280
TTGTCTTCAA	AATCAAACCTG	GGTCACCTGC	ATAGGGAGGG	CTGTTTGATC	CAATTTTAA	11340
CCTGAGAGAT	TGATGCGTTT	AACCTTACCA	TCATCAGCAA	GTGTCAAAC	AACAGGCGTT	11400
CCTGTCTTGA	TTTCAGTTGT	ATCATCACCC	CAACCGGCCA	TGCGGACATA	GCCACCCAGA	11460
GGCAAGATTC	GAATGGTATA	GGCCGTTCCT	TCCTTGCCAA	TGTGAGCAAA	AATTTTAGGT	11520
CCCATACCGA	TGGCAAATTC	ACGTACTAAA	ATCCCTGATT	TCTTGGCAAA	GTAGAAGTGA	11580
CCGAACCTCG	GCACCACTAC	AATAATCCCG	AAAACCAGAA	TAAAGGTTAA	AATTCAGAGC	11640
ATAGCGTTTC	CTCCGTCTTT	TGATTAAAAG	AGTCCAAATA	AGTGCATGAT	TGGAAATACA	11700
AGCAACATAC	TATCGAAACG	ATCCAAAACA	CCACCATGTC	CAGGGATAAA	TTTCCAGAA	11760

615

TCCTTAACAC CAAAATGACG TTTGATCGAA CTTTCTAGTA AATCACCAAA TTGTCCAGCA	11820
ATGCTAAAGA AAATAGCAAA GACTGACATC TTGTAAATTC CATATGGAAG AGCAACTGTA	11880
CTGTCAACTA TCATAAGGAT AATGGTTACT AAAATTGCTC CTAAAATACC ACCCAAGGCA	11940
CCCTCAAGGG TTTTATTAGG CGATACCCCT GGTGCTAACT TTCGTTTCCC ATAGTTCATC	12000
CCAACAAGAT AGGCACCACT GTCTGTCGCC CAGACGATAC ACAAGGCTAA GAGAGCCTTG	12060
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TCCAAACCTG CAACACGAGC ATCTAGTAAA GCATTAAATC CAAAGCCCAC GTAGAAGCTC	12120
ATAGCAAGAG GGAAAACCGC ATCCTCAATC GTATAAGACT TGCTAAAAAC GGTCGTTCTT	12180
AACATGATTG AAATCAAAAC ACTATAGGCA ACCACATTCC CATCAACTGG CAAAAAAGTC	12240
AGGTAATTCT CCAAGGGAAT GGTCAATGCA AAGGTTGCAA AGAGGGTCAA GAGGCCCTCC	12300
ATCGTCATGG TCTCTAGACC TCTCATCTTC AAAAGTTCAT GCATGGCTAG CATGGCTATG	12360
ATTCGATTG CTATCTGAAG CAAGAGGCC CCAATCATTAA AAATTGGTAG GAAAAATAGCC	12420
AGGGCAATCC CTGCAAAACA GGTCTTTTTC TGTAATCCTT GGGTCATATT TCCTCCTAAA	12480
CTCTCCAAA TCGGCGATGA CGACGATTAT AGGCAAGAAT AGCTTCCTGC AAGGCCGCTT	12540
CGTCAAAATC AGGCCATAAG GTGTCCGTAA AATAAAGCTC ACTATAGGCT CCCTGCCATG	12600
GAAGGAAATT GCTCAACGCT AATTCTCCAC TAGTACGGAT AATCAAGTCT GGGTCTCGTA	12660
AGTCCTTAGG CAAATGCTGA GTAAAGAGAT AGTTACCAAT CAATTCCTCT GTGATGTCAC	12720
CTGGGTTGAT TTTGGCATCT AAAACATCCT GGGAAATCAA CTTAAGCGCC TGTGTAATCT	12780
CAGCACGTCC ACCATAGTTA AGAGCAAAAT TAAGAATCAA TCCTGTGTTG TTCTTAGTCA	12840
ATTCCTCAGC CTTGGTTAAA GCTTCAAAGG TTTGCTTAGG CAGGCGGTCT GTCTCCCCAA	12900
TCATTTGAAT CTTAACATTA TTCCGATGTA GTTCCGGGAC ATAATTATCA TAAAACTCTA	12960
CTGGCAAGTT CATGATAAAC TTGACTTCCT GATCTGGACG GGTCCAGTTT TCCGTAGAAA	13020
AAGCATAGAC CGTAATAACC TTGACGCCCA GTTTGTTGGC TGCCTTGGTC ACGGTTTGCA	13080
ATGCTTCCAT GCCCGCCTTA TGTCCAAAAA CTCGCGGTG CATACGTTTT TTAGCCCAAC	13140
GGCCATTGCC ATCCATGATG ATGCCGATAT GAGCAGGAAC CTGTGTCGGA ACCTCTACTT	13200
CCACAGCCTT ATCTTTCTTA AAAAAATCAA ACATGATCTT ATTCCTATTC AAAAAATCTAT	13260
CGTTTCATTA TACCATATTT CCCCATTTTC TTCTATCACT AAGCTATTTA TTCTCAGGCA	13320
CCAAGCCCAT TTTTCAAAAA AATAAGCCGC CTGATTGGGC GACTTTATTT TTATAGGGAG	13380
ATTATTATGA AAAAGTTTAA GGAGTTTAAAG TTAAGGTCTT CTTAACTTAT GAACTTAGTG	13440
TACACTCCCT AGCTTAAAGT TTCCTTAAAG ATTTTTAAAA ATCAAATTTT TCCATTTCCT	13500

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CTGCCAATTT TTCTTGGATA AACGTGTTTG ATAGAGTTCC ATTCGGTCTT CATTTTCTAA	13560
GAAATGAGGA GTTGGACGAA CTTGAAAATT CAAAATATCC TCCAAACCAT AAGGTACATA	13620
GAGTTCAAAA TCTAATTCTT CATTCAGCG CAGTCCAAC GCCGTACACC GTTCTGGATA	13680
CTTACTCATA GCATCACGAG AACTGGTATA GGAAGCAGTG TGAGGACTGT GCTGATGCAT	13740
ATAGACCTGA TTTTCAATT CCCACTGGTA CTGAGGAAAA TCCTCTCTCA GCTTTTCTC	13800
CAGTAATAAG GTTTCCTCAT AAGAAAAATC TGGATCAAAG AAAATCACAT CTATATCTGT	13860
TTCATGATCA AAAGGGGATT TGTCTGACAA AAGATTCCAG ATGAAATTTC TGACAGAACC	13920
TGCTGCCAAC CACGAGTCTT TCAAACCAAG GTCTCGGATG ATCGTCAGAA TGGCCATCAT	13980
ATCTGGACTT TCTCTAAAAG CCTCTAAGAT TTCTTGCTTA TTTTCTACTG TATTCATAAC	14040
CTAAGTGCTC ATATGCCTTA GCAGTCGCCA CCCGTCCAGA CCGTGTCGCC ATGATAAAAC	14100
CTTTTGAAT CAAGTAAGGC TCATACATGT CTTCAACTGT CTCACGCTCT TCGGCGATAT	14160
TCACAGAAAG AGTTCCTAGA CCAACAGGTC CTCCTACTGA CATCTCAATC ATGGTGCGAA	14220
GGATTTTTTG ATCCACATAG TCCAAACCTT CATGGTCAAC ATCCAGCATA GTCAAAGCCT	14280
TATCGGTAAT AACATCATCG ATAACCCCAT TCCCATTTAT CTGGGCAAAA TCGCGCACGC	14340
GCTTGAGGAG ACGATTGGCA ATACGAGGGG TTCCACGACT ACCTAGGGCC AACTCAGATG	14400
CTGCCTCATG GGTGATTTC ATCTCAAAAA TATCTGCCGT CCGCTCGACA ATTTCTGTCA	14460
AGTCAGCATG AGCATAATAC TCCATATGAC CTGTAATCCC AAAACGTGCC CGTAGTGGAT	14520
TTGAGAGCAT ACCAGCCCGA GTCGTGCGAC CAATCAAGGT AAAAGGAGGC AACTCCAAAT	14580
GAACACTGCG ACTGCCTTCA CCAGCCCCAA TCATAATATC GATGTAGAAG TCCTCCATGG	14640
CACTATAAAG CACTTCTTCC ACTGACATGG GTAAGCGATG AATCTCGTCA ATAAAGAGGA	14700
CATCTCCAGG CTCTAAATCA TTCAAAATCG CTACCAAATC ACCCGCTTTT TCGATAACAG	14760
GACCAGACGT TTGCTTGAGA TTGACTCCCA GTTCATTGGC AATGACAAAA GCCATGGTTG	14820
TTTTCCCAAG CCCTGGAGGG CCAAATAAGA GCACATGATC CAGCGCTTCA TCCCGCATTT	14880
TAGCGGCTTC GATAAAGATC TGAAGTTGAT CCTTAACCTT ATCCTGACCA ATATATTAC	14940
GTAAATACTG AGGACGGAGC GTGCGTTCTA CTAATCCTC ATCACCATC ATCTCATTAT	15000
CTAAAAATCT ACTCATGGCT CTATTATATC AAAAAAACA AGCCACAAAC AAAAAAGCCA	15060
CCTGATTGGG TGAATCCTAA GTTTAGCACT TATGTGGTAT AATATTATAC GGCATTCTA	15120
CACCGCTAC GAAAGGAGGT GAGATAGCCC ATGATGGAAT TAGTACTCAA AACTATTATC	15180
GGACCAATTG TGGTCGGTGT CGTTCTTCGT ATAGTCGATA AATGGCTAAA CAAGGACAAA	15240
TAGTGTCAAA AAAGACCTCA AGCTTATTTG GTCGTGAGCT TGGGGTCTTT TCTAGCCTAT	15300

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GATATAGAAC TAGTACTCAA TTCCTTTTTA TTATCCCATTA GTTCACGAAT TTTGTCAAAA	15360
CTTTACATTT TCTTCAACCG CTGTACGACA AGACGGTTAA GATTAAAGAGA ACGTTAGGGA	15420
TTCTATCAAT TTCATAGAAA TTTTGATTTC GTAAACGAAG AGACAATCTT ACATGTCACT	15480
TCTCATTTAA TACGCCACTA CTAGACAAGC AAAATCATT A TTACAGTAGT TCCAGTCCTT	15540
CAATTAACAG TCACTTACAA TCAAATTGAG TTTGAACTAG CTGAAGCGAC CACAGACCTA	15600
TTTCTTAGTC ATATTGCTA AAAAAATCCC CGCCAAAATC TCAAAAAGTC CCCGCCAATT	15660
CCCCGACCAA AATCCGAAAA ATACCGAAAA ATATCGAAAA ATTATTTTTA GAATAGTCCC	15720
AAAAATCCTG AAATAGAGCT AAAAACTCC ACCTGATTCC GTGGAGTTAA GGGAGATTAT	15780
TATGAAAAAG AAAAGTTAG GATTTTATTA AATAAAGTTA GGAGGTCTTT ATTTAATAAC	15840
TACATGATAC AAGACGAAAC TTAAACTAG CTTAACTTTT CTAAAAATTT ACTATTTTGC	15900
AAAAAATTC TATCACCAGC ACCTCACCAA TCGAGTAGGG GATAATCTCT AGCCCTCTC	15960
ACACCACCT ACGTGCCGTT TGGCATACGG CGGTTCAACT AACTTTTAAC GCATGTCGTT	16020
CAAGGTAATA ATCCAAACAC GAAACCAGTC CACGTTTTTC CAGGACTGGT TTTGATATAG	16080
CACGTTAAG TACCGACTTC TGAGCTACTA ATTGATAATG GTCGCCCCAG CCAGATACCT	16140
TATCTGCTAT CCATTTAGGA ACTCCTAACT TAAGCAATCC CCATAATCGT CTCGATTCT	16200
TCTTCCATTG CTTCCAGATA ATCACTCGTA GCGGAGTACG CAAGCGCTCA TCTATGCTGG	16260
CGACTATACT TTTGATATTT CCCAATGAGC AATAGTTTAT CCATCCTCGA ATAGACAAAT	16320
TCAGTTGCTC AATACGTCTT GTTAGGTCTA TACTCCATTT CCTCTGTGTT AGTTTCTTCA	16380
ATTTAAACTT AAATCTCCGA ACACTATCTT GATGTGGACG GCTTTTCCAA CCATCTGATA	16440
ATTTCAGAA CCCAAACCT AGATATTTCA ACTCTCTTGG TCATGTTTAC TTTCAAACCT	16500
AGCCGTTTCT CAATAACGA CTGACTGAAT ACATC	16535

## (2) INFORMATION FOR SEQ ID NO: 75:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8136 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 75:

CCAGAGCGTT GCGTCCGAAA GTCTATCCAG ACACGGCTCT TAAAAACAA AAGGAGAAAT	60
GATGCATACT TATTGCAAA AGAAAATTGA AAATATCAAA ACAACCCTAG GTGAAATGTC	120

618

AGGTGGTTAC CGTCGTATGG TTGCGGCTAT GGCTGATTTA GGATTTTCAG GAACTATGAA	180
GGCTATCTGG GATGACCTCT TTGCCCATCG TAGTTTGGCC CAGTGGATTT ATTTGCTGGT	240
TTTAGGAAGT TTTCCTCTCT GGCTGGAGTT GGTTTACGAA CATCGTATTG TTGACTGGAT	300
TGGGATGATT TGTAGCTTGA CAGGGATTAT CTGTGTAATC TTTGTATCGG AAGGTCGAGC	360
AAGTAATTAT CTTTTTGGCT TGATTAACTC TGTTATTTAC CTTATTTTGG CCCTACAGAA	420
AGGCTTTTAT GGTGAGGTGC TGACGACACT TTACTTCACA GTCATGCAGC CAATTGGACT	480
TCTAGTTTGG ATTTATCAGG CACAGTTTAA GAAGGAAAAG CAGGAGTTTG TCGCGCGTAA	540
ACTGGACGGC AAGGGCTGGA CAAAGTATCT TTCCATTAGT GTGCTTTGGT GGTGGCCTT	600
TGGCTTCATT TATCAGTCTA TTGGTGCCAA TCGTCCCTAT CGTGATTCAA TCACAGATGC	660
AACCAATGGG GTAGGGCAAA TCCTCATGAC AGCTGTTTAC CGTGAACAGT GGATATTCTG	720
GGCGGCTACC AATGTCTTTT CAATCTATCT CTGGTGGGGA GAAAGCCTGC AAATTCAAGG	780
GAAATATCTA ATTTATCTCA TTAACAGTCT AGTTGGTTGG TATCAATGGA GCAAGGCAGC	840
TAAGCAGAAT ACTGATTTAC TTAAGTAGGA AAAGATGTTT GAAAGTGCTG TTTTGAGATT	900
TCGATTAAAA CAGATATAGT TGATAATCAA GGATTTATAG TATGAAAAAG AGGATCGGCG	960
GGTCCTCTTT TGTTGTTGAA AAGATAAAAA ACTCAGTAAC CTAGAAATAA GACAACTGAA	1020
GCTTTACTCT ATATTCAATT TTTAGGAATG AGAAGGTCTA GATAAAATTG GACAACTTCC	1080
TGGTCTGTGA AATCTTGACC TTTTTGAGC CACCAGGTCA ATGTCTCGAT AAAGTTGGAC	1140
ATGACCAAGT GTTGGAGGTA AGAAGTAGGC AGATTAGGGT GGGCTTCTTT TAAATTATCA	1200
GCTAGCACGG AATAGACATG GTGTTCTAGC TCTTTATGGA GTTGACGGAG GAAGTAGTCA	1260
TTTTTGGAAG ATAGCAGACT GGTGATATGG TCTTGGTTTT TATGAAAATG GAGAAAGAGG	1320
TGGGCGAGGT AGTCCTCGGT TGAAATGGCT TGCTCTCTTT CAAAAAGATG ATGGAAGAGG	1380
TAGCGGCAGA GCTGGTCCAG AAGAAGCTCC TTAAGTCTCAT AGTGACAGTA AAAGGTGGAT	1440
CGTCCACAT CTGCGAGATC AATGATATCC TGAACAGTAG TGGCCTCGTA GCCCTTAGCA	1500
TTCAAAAGTT GTATAAAGC TTGATAGATG GCTTTTTTGG TTTTGCTGAT ACGGCGGTCA	1560
ATGTTAGTCA TATGGACACT TAAGGCAAAT TGTTTCAAGC TGAATAAAGC TGACGTTTTG	1620
CTTCTATCCT TTCTTTGAGT TTTAGTGGAT AATGATAATG AACAAGGTGT TCATAAATCT	1680
ATTATAACAA AGGAATGAGA AATATGAAGG CAAAATATGC TGTTTGGGTG GCTTTTTTCT	1740
TAAATTTGAC TTATGCCATT GTTGAGTTTA TTGCAGGTGG AGTATTTGGT TCTAGCGCTG	1800
TTCTTGCTGA CTCTGTGCAT GACTTGGGAG ATGCGATTGC AATTGGAATA TCAGCTTTTC	1860
TAGAAACAAT CTCCAATCGT GAAGAAGACA ATCAGTACAC CTTGGGCTAT AAGCGGTTTA	1920



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GCCTGCTAGG AGCCTTGGTA ACAGCTGTGA TTCTCGTAAC GGGCTCTGTT CTAGTCATTT	1980
TGGAAAAATGT CACGAAGATT TTGCATCCGC AACCAGTCAA TGATGAGGGG ATTCTCTGGT	2040
TAGGAATTAT TCGGATTACT ATCAATCTGT TAGCGACTCT GGTGGTTGCT AAGGGAAAGA	2100
CAAAGAATGA GTCTATTCTG AGTCTGCATT TTCTGGAAGA TACGCTAGGG TGGGTAGCTG	2160
TTATCCTGAT GCGGATTGTT CTTTCGATTTA CGGACTGGTA TATCCTAGAT CCTCTTTTGT	2220
CCCTTGTCAT TTCTTTCTTT ATTCTTTCAA AAGCCCTTCC ACGTTTTTGG TCTACACTCA	2280
AGATTTTCTT GGATGCTGTG CCAGAAGGTC TTGATATCAA GCAAGTAAAG AGTGGCCTGG	2340
AGCGATTGGA CAATGTGGCC AGCCTTAATC AGCTTAATCT CTGGACTATG GATGCTTTGG	2400
AAAAAATGC CATTGTCCAT GTTTGTCTAA AAGAAATGGA ACATATGGAA ACTTGTAAG	2460
AGTCTATTCTG AATTTTCTTA AAAGATTGTG GTTTTCAAAA TATTACCATT GAAATTGATG	2520
CTGACCTAGA AACTCACCAA ACCCATAAGC GAAAGGTGTG TGACTTGGAA CGGAGTTATG	2580
AGCATCAACA TTAGAAAAA GTGAAAAATA CTTGGGTACT ATCTTATTTG GAATAGAGTA	2640
ATTTCTTTAT TATTTAAATA TTTCAAAAAT TGGTAAGAGA AGAGCATTGT ATAACTCCA	2700
GATATATGAT TGTTAATGAT AAAAATTTTT CGATTAGATA CAAAATGCTT GACTTGGAGT	2760
CAACTCAAAG TTATATAATA AGATAAGTGA GTTAGAATAG CGTGAATTCA GTGAATGAAA	2820
TGAGAGGAGG TTAGCGTGTG AATATTAAAT CTGCCAGTGA TTTGTTGGGA ATTTCAGCGG	2880
ATACGATTCTG GTATTATGAA CGGGTTGGTC TTGTGCCACC GATTACTCGT ACTGCTACTG	2940
GGATTCTGTA TTTTCAAGAT CAGGATATCG AAGCGCTGGA ATTTATTAAG TGTTTTCTGT	3000
CGGCGGGTGT CTCTGTAGAT AGTTTAGTTG ACTATATGTC GCTCTACCAA AAGGGAGATG	3060
AAACGAGAGA GGAGAGGCTT GGTATTTTAC AAGAGGAAAA GCAAAAATTA GAGGAGCGCT	3120
TGTCTCAGCT ACAGACAGCT TTAAATCGTT TAAATCTCAA AATTAACTT TATAAGGAAG	3180
GAAAATTTTA AATGAAATCA GCAGTATATA CAAAGGCAGG TCAGGTTGGA CTTGCTAGCA	3240
TTGAACGTCC GCAAATAATA GAAGCGGATG ATGTGATTAT TCGTGTGCTT CGTGCGTGCG	3300
TTTGTGGTTC AGATTTATGG AGGTACCGTA ATCCAGAAAC GAAAGCTGGA CACAAAAATA	3360
GTGGACACGA AGCGATTGGG ATTGTTGAAG AAGCTGGGGA AGCCATTACG ACGGTGAAAG	3420
CAGGTGATTT TGTGATTGTC CCTTTTACAC ATGGATGTGG TGAGTGTGAT GCCTGTCTTG	3480
CTGGATTTGA CGGTCTTTC GACAATCATA TTGGCAATAA TTTGGGGGGT SATTTTCAGG	3540
CAGAAATATAT TCGCTTCCAC TATGCAAACT GGGCGCTGGT TAAAATCCCT CGTCAACCTT	3600
CTGACTATAC AGAAGGGATG CTCAAGTCCC TTTTGACTCT TGCAGATGTC ATGCCGACAG	3660

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GCTATCATGC	GGCGCGTGT	GCAAATGTTC	AAAAAGGGGA	CAAGGTTGTT	GTTATCGGTG	3720
ATGGGGCTGT	TGGTCAATGT	GCTGTCATCG	CGGCTAAGAT	GCGTGGAGCA	TCACAAATTA	3780
TCCTTATGAG	CCGTCATGAA	GACCGTCAAA	AGATGGCTAT	GGAGTCAGGT	GCGACAgcTG	3840
TTGTTGCAGA	ACGTGGTCAA	GAAGGAATTA	CCAAGGTGCG	TGAAATCCTC	GGTGGAGGAG	3900
CAGATGCAGC	ACTTGAATGT	GTTGGTACGG	AGGCTGCTAT	AGAACAGGCG	CTAGGTGTTC	3960
TTCATAATGG	AGGGCGTATG	GGCTTTGTAG	GAGTCCCACA	CTATAATAAT	CGTGCTCTTG	4020
GTTTCGACATT	TATGCAAAAT	ATCTCTGTAG	CAGGTGGGGC	AGCTTCTGCT	ACAACATACG	4080
ATAAGCAATT	TTTACTAAAA	GCCGTCCCTG	ATGGTGATAT	CAATCCAGGT	CGCGTCTTTA	4140
CTTCAAGTTA	TAAACTGGAA	GATATCGACC	AAGCCTATAA	AGATATGGAT	GAACGTAAGA	4200
CAATTAAGTC	TATGATTGTA	ATCGAATAAA	AAACGAATAG	GAGTTTTAGA	ACTCTATTTCG	4260
TTTTTTATGT	TATCCTATTC	TTGATTTAGG	GTACTTTCTC	TTAATGTCAG	TCTGGTTCCC	4320
AGCATGGTCA	GGCTAGGGAT	TTTCCGACCG	TGGAGGACTT	CCTTGTTAAG	AATATCCATA	4380
CCTGCTCGGC	CCATTTCTTC	AGTATAAACT	GTAATACTAG	AGAGGGGAGG	ATAGACCTGT	4440
TTGGTCAGAC	TAGTGTCTGT	AAAGGAAATG	AGGCTGACGC	GATCTGGCAG	GCTGATTCCA	4500
GCTTCTTGGA	GGGCACGGAG	GGCACCGATA	GCTAAACTAT	CGCTGGCTGC	GAAAAATGCT	4560
GGCGGAAGTT	GGTCTCCCAA	GCTCTGAATG	GCCTCCTTCA	TTAAGTCATA	GCCAGACTGG	4620
GCAGTAAATC	TTCTTTGAAA	GACCAGTTCA	TCATGATAGA	TTCCCCTCGC	TTGACTATAG	4680
TTTTTGAAGT	TTTCTAGACG	CTTGCTCTGA	ATGATTICTT	CTTGGTCTGT	TGTTTCTTCA	4740
AGGCCTGTTA	GAATCCCGAT	ACGGTCCATT	CCTTGACTGA	GGAAATAATC	GACAACTGT	4800
TTCATAGCAG	TGTAAAAATC	CGTGATAATA	CAGGTATGTC	CCAGGGAAAG	TGTATCGCTG	4860
TCTAGAAATA	CAAGAGGCTT	TTGGTATTCT	TCAAAGGCAG	AAATCTGAGC	TCGACTAAAC	4920
TTTCCGATGC	AGAGAATCCC	AATCACTTCC	TCGCTTAGGG	TAAAAGGGTG	GTCATTAAAA	4980
TAGCGCAAGA	TATCATAGTC	CAACTCTTGG	GCTCTTTTTT	CTATTCTTAG	GCGAATCTGG	5040
TAGTAGTAGA	GGTCGTCCAG	CTCCCCTTGT	TCGCTGACCC	ATTGGATAAT	GGCAATCTTT	5100
TGCTTGGGTT	TGTGGGACTC	GCCTGTCTTG	AGGTGCTTGG	TGTAGCCCAG	CTCTTCAGCA	5160
ACGGTTAAAA	TACGGTGTCT	GGTTTCTTCT	GTAACAGATA	GGCTCTGGTC	GCGGTTGAGG	5220
ACGCGGGATA	CGGTCGCGAT	AGAGACAGAG	GCTAGCTGTG	CAATGTCTTT	TAAGGTAGCC	5280
ATAAATCCTC	CTTGATTAGG	TTAGTATATC	ATGTTTTTCT	TCTTTTTACT	GATATTTTAC	5340
TAAAAATTTA	GTAAAAAGGA	TTGACCTTGG	AAAATTCCTT	GGATATAATA	GAAAGAAAAAC	5400
GATTACACGT	TAAGATGGCT	TAACGGACAG	TCAAAGGAGA	ATTCATATGG	CACAACATCT	5460

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TACTACTGAA GCCCTTCGCA AAGACTTTCT TGCTGTTTTT GGTCAAGAAG CAGATCAAAC	5520
CTTCTTTTCA CCAGGCCGCA TTAATTTGAT TGGTGAACAC ACAGACTACA ACGGTGGGCA	5580
CGTTTTTCCT GCTGCTATTT CCTTGGGAAC TTACGGTGCA GCTCGTAAGC GTGACCACCA	5640
AGTCTTGCCT TTCTACTCAG CTAACCTTGA GGACAAGGGC ATTATCGAAG TGCCTCTCGC	5700
TGACCTCAAG TTTGAAAAAG AGCACAACTG GACCAATTAT CCAAAAGGTG TCCTTCATTT	5760
CTTGCAAGAA GCTGGGCACG TGATTGACAA AGGTTTTGAT TTTTATGTTT ATGGAAATAT	5820
TCCAAATGGT GCTGGCTTGT CTCTTCTGCG ATCCTTGGA CTCTTGACAG GAGTCGTGGC	5880
TGAGCATCTC TTTGATTTAA AATTAGAGCG TCTCGATTTG GTTAAAATCG GCAAACAAAC	5940
AGAAAACAAC TTTATCGGAG TAAACTCTGG CATTATGGAC CAGTTTGCTA TTGGTATGGG	6000
GGCAGACCAA CGTGCTATTT ACCTAGATAC TAATACTTTA GAATACGACT TGGTGCCACT	6060
TGATTTGAAG GACAATGTCG TTGTTATCAT GAACACCAAC AAACGCCGTG AATTGGCGGA	6120
CTCTAAATAC AATGAACGTC GTGCTGAGTG TGAAAAAGCA GTGGAAGAAT TGCAAGTTTC	6180
CTTGGATATT CAGACTCTGG GTGAATTGGA CGAGTGGGCC GTTGACCAAT ATAGCTATCT	6240
GATTAAAGAT GAAAATCGTT TGAAACGTGC TCGCCATGCT GTGCTTGAAA ACCAACGTAC	6300
CCTCAAAGCT CAAGTAGCAC TCCAAGCAGG AGATTTGGAA ACATTTGGAC GCTTGATGAA	6360
TGCGTCACAC GTTCTCTGG AGCATGATTA TGAAGTAACT GGTTTGGAAT TGGATACCCT	6420
TGTTACACAC GCTTGGGCAC AAGAAGGAGT TCTCGGTGCT CGTATGACAG GGGCTGGTTT	6480
TGGTGGCTGT GGCATTGCCT TGGTTCAAAA AGATACTGTT GAGGCCTTTA AGGAAGCTGT	6540
AGGCAAACAC TACGAGGAAG TAGTTGGATA CGCTCCAAGC TTCTATATCG CTGAAGTTGC	6600
AGGTGGCACT CGCGTCCTTG ACTAGTCAAA AGGAGGCTCT ATAGTGACCT TAGTAAATAA	6660
ATTTGTAACA CATGTCATTT CTGAAAGCTC ATTTGAGGAA ATGGATCGAA TCTATCTGAC	6720
CAATCGTGTT TTGGCACGAG TGGGAGAAGG TGTTTTGGAA GTTGAGACCA ATCTGGATAA	6780
ATTGATTGAC CTCAAGGACC AGCTGGTTGA AGAAGCCGTT CGATTAGAGA CGATTGAGGA	6840
TAGTCAGACT GCGCGTGAAA TCCTTCGTGC TGAAGTGATG GATTTGGTGA CTCCTTGTC	6900
AAGTCAGGTC AATCGTGATT TTTGGGCAAC CTACGCCCAC TCTCCAGAAC AAGCGATAGA	6960
GGATTTTTAC CAACTCAGTC AGAAAAATGA CTACATCAA CTCAAGGCCA TTGCTAGAAA	7020
TATCGCTTAT CGTGTTCCAT CTGACTACGG AGAAGTTGAA ATTACCATCA ATCTCTCTAA	7080
GCCTGAAAAA GATCCCAAAG AGATTGTGGC AGCCAAGTTG GTGCAAGCTA GTAATTATCC	7140
TCAGTGTCAG CTTTGTCTAG AGAATGAGGG CTACCATGGT CGAGTTAACC ACCCAGCTCG	7200

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TAGCAATCAC CGTATTATCC GTTTTGAAAT GGTGGTCAG GAATGGGGTT TCCAGTATTC	7260
GCCCTATGCT TACTTTAATG AGCATTGTAT CTTTTTAGAT GGCCAGCATC GTCCCATGGC	7320
CATTAGTCGT CAGAGTTTTG AACGTCTGTT GGCTATCGTA GACCAGTTTC CAGGATATTT	7380
TGCTGGATCT AATGCCGACC TGCCGATTGT GGGGGGCTCT ATTCTAACTC ATGATCATTA	7440
TCAGGGAGGC CGTCACGTAT TTCCTATGGA ATTGGCTCCC TTGCAAAAGG CTTCCGATT	7500
TGCTGGTTTT GAGCAGGTCA AGGCTGGAAT TGTCAAGTGG CCCATGTCTG TCCTACGTTT	7560
GACTTCGGAT TCCAAAGAGG ATTTGATCAA TTTGGCTGAT AAGATTTTGC AGGAATGGCG	7620
CCAGTATTC AATCCTGCAG TGCAGATTTT GGCAGAGACA GACAGGACAC CGCATCACAC	7680
TATCACACCC ATTGCCCGCA AACGCGATGG ACAGTTTGAG TTGGACTTGG TCTTGCGAGA	7740
CAATCAGACT TCAGCAGAGT ATCCTGATGG TATCTATCAT CCCCACAAGG ATGTCCAACA	7800
TATCAAGAAG GAAAATATCG GCTTGATTGA GGTCTATGGC TTGGCAATCT TGCCACCACG	7860
TCTGAAAGAA GAAGTGGAGC AAGTCGCTAG CTATCTTGTA GGAGAAGCTG TTACAGTTGC	7920
CGATTATCAT CAGGAGTGGG CAGACCAACT CAAATCCCAA CATCCAGACT AACGGATAAA	7980
GAAAAAGCCC TTGCAATCGT CAAGGACTCT GTGGGTGCTA TCTTTGCGCG TGTACTTGAG	8040
GATGCAGGAG TCTACAAGCA GACAGAACAA GGCAGACAG CCTTTATGCG CTTTGTGGAA	8100
CAGGTCGGAA TTTTACTAGA CTAGGAGCTT TCTCGG	8136

(2) INFORMATION FOR SEQ ID NO: 76:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 10011 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 76:

CCCATAGTGA AGAGTGGCCA TAAGAAGGTC TTCTAGGCTT AATTTAGGTT TTCGTCCACC	60
TTTTGCGTGT TTAAGTTGAT AAGCTGTTTT TAACACAGCT GAACATCTCT TCAAAAGTCG	120
TGCGCTGAAC ACCAACAAGA CATTTAAATC GTGTATCAGT TAGTTGTTTA CTTGCTTCAT	180
CATTTCATAGA ACTACTATAC CATGTTTTGT TTCGCAGGAA GTCTAATATT GTCAAATACT	240
GGAACGCTCA TTGCTGGGAT ACGGAATAAG ATTGGCCCAG CTTCGATAAC TGGGATACCT	300
GGTTCAAAAC CAAGGTCTGT TGCAGCGATT GGTGTAAAGA TATCGTAACC TTTCATAAGG	360
TCTTCGTTTA CATCTTTCAC CATAACTGCA TCACAGTGAA CATCGTAACC ACGGTTTGAA	420
AGTTCTTCTT CTAGAGCACT TTTAATTTGG TGAATTGAGT TAACACCTGC ACCGCAGGCA	480

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GCAAGAATTT TAATCATTTG GATTTCTCC GATTTTATTT TTTAATAGAC AAGATTAAGC	540
GGTTGCTTCA GCAATGTAAG CATAAAGGGC TTCTGGTTCA GAAATTTTTC ATAGGTCTTC	600
AAGATGACCA TTTCTGTGA AGAAGTCCAT TAAC TGAGCA AGAATGTTTCG TTTGACTTGA	660
ACTTGAATTA TTGATGATAA AGAAGAGCAA GGATACTTCT ACTTCCTTAC CTGGCGCAAT	720
CATATTATGG AAAGTCACCG GTTTCTCTAA TCGAACAACC ACCACTTTCT CAGCTAGATT	780
ATGAACAATA TCTGTGTGAG GAATCATTAC ATTTGCAAGT CCTTTCCTAG AAATTCCATA	840
TATAAACCAAG TTGGAATGA CTTTTCACGC GTGATCAAGG CTTCACGATA AGTTGGAGTG	900
ACAATTTCTC GTTCTTCCAA CAAGCTTGCT ACCTGATCAA AAAGTTATTC TTGATTATCC	960
GCTTCTAAGC AAAACACAAG GTTTTGTGCA AAGAAATAAT CTAATACCAT AAGGTTTTC	1020
CTTCTTTCCA TTAACCTTAT GCTATAAGTA TAACACTATA TGAAATCGTT GTTAATTACT	1080
TTCTATCTTT TTTTGTCTCT TTTTATATAT TTTGTTTTG TTTATAGTTT GTTATATAAA	1140
AATAAACACA CAAACAAATA CTCCAAGCAT TTTCTGTTC TAATACTCAA TGAAAATCAA	1200
AGAGCAAAC AGGAAGCTAG CCGCAGTTGT TCAAAACACA GTTTTGAGGT TGTAGATGAA	1260
ACTGACGAAG TCACTCAAAA CATGGTTTTG AGGTTGTAGA TGAAACTGAC GAAGCAACAG	1320
CCATACATAC GGTAAGGCGA CGCTGACGTG GTTTGAAGAG ATTTTCGAAG AGTATAAAAA	1380
CTAAAAAGC AGACCATCTA AGCCTGCTTT ACTATTGATT CTTATATAAA TTTCTGTGA	1440
ACAAGGAAAG GCATTTCTGA TAACTTATTC TTCATCCATA CTCAAGACGC TGAGGAAGGC	1500
TTCTTGCGGA ACTTCAACTG ATCCGATGGA TTTCATGCGT TTCTTACCAG CTTTTGTTT	1560
TTCAAGGAGT TTACGCTTAC GAGAAACGTC ACCACCATAA CATTTAGCAA GTACGTTCTT	1620
ACGAAGGGCC TTGATATCAG TACGAGCGAC AATCTTGTGT CCAATAGCCG CTTGGATTGG	1680
AACTTCAAAT TGTTGGCGAG GGATGATTTT CTTGAGTTTA TCAACGATGA GTTTCCCACG	1740
TTCTTAGGCA AAGTCCTTGT GAACGATAAA GCTGAGGGCA TCCACCTTAT CTCCATTGAG	1800
AAGAATATCC ATTTTCACCA GCTTAGATGG GCGATATTCT GACAATTCGT AGTCAAAGCT	1860
TGCATAACCA CGTGTGGAAG ACTTAAGTTT ATCAAAGAAG TCAAAGACAA TTTCAGCAAG	1920
AGGAATTTGA TAGATAACAT TGACACGGTT ATCATCAATA TAGTCCATAG TCACAAAGTC	1980
CCCACGCTTA CGCTGAGCTA GCTCCATTAC TGCTCCGACG AACTCCTGTG GTACCATGAT	2040
TTGCGCCTTG ACATAAGGCT CTTCAATGGT CGCAATCTTA GTTGGGTCTG GAAACTCAGA	2100
TGGGTTAGAC ACATCCATAG ACTCACCGTC GGTCAAATTA ACTTTGTAAA TAACAGACGG	2160
AGCTGTCATG ATGAGGTCAA TATTGAACTC ACGCTCTAAA CGTTCCTGGA TAACATCCAT	2220

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ATGGAGAAGT CCAAGAAATC CACAACGGAA ACCAAATCCA AGTGCCTGAG ATGTTTCTGG	2280
TTCAAACCTGA AGACTAGCAT CATTCAGTTG CAATTTTTC AAGGCTTCAC GCAGGTCATT	2340
GTACTTGTTT GATTCGATTG GGTAGAGACC CGCAAAGACC ATAGGATTCA TCTGCTTATA	2400
ACCATGTAAT GGTCTGCGG CAGGATTGGT TGCCAAGGTA ACGGTATCAC CCACACGAGT	2460
ATCCTGAACC GTCTTGATAG ACGCCGCAAT GTAACCAACA TCACCAGTCG CAAGGAAATC	2520
ACGACCAACC GCTTTTGGTG TAAAAATACC GACTTCGGCC ACATCAAAGG TCTTACTATT	2580
GCTCATGAGC TGAATCTTAT CACCAGGTTT GACCACTCCG TCCATGACAC GCACTTGGAG	2640
GATAACCCCA CGGTAAGCAT CGTAAACAGA GTCGAAAATC AAGGCCTTAA GTGGCGCCGT	2700
CACATCACCC GTTGGTCTG GTACTTTTTC TACAATTTGC TCGAGGATTT CTTCAATCCC	2760
AATACCAGCC TTGGCAGAAG CCAAACTGC TTTACTGGCA TCCAAACCAA TCACATCTTC	2820
AATCTCTGTA CGCACGCGCT CCGGATCTGC AGCCGGCAGG TCAATTTTAT TAATGATAGG	2880
CATGATTTCC AAATCATTAT CCAAAGCCAG ATAAACGTTG GCAAGAGTTT GAGCCTCAAT	2940
TCCTTGAGCC GCATCGACCA CAAAATAGC ACCCTCACAG GCAGCTAGCG AACGTGAAAC	3000
TTCATAGGTA AAGTCAACGT GCCCTGGTGT GTCAATCAAG TGGAAAATAT AAGTTTCCCC	3060
ATCTTTTGCA GTGTAATTCA ACTCGATGGC ATTCAACTTA ATAGTAATTC CACGTTCCCG	3120
CTCTAGCTCC ATGCTATCCA AAAGCTGGGC CTGCATTTCA CGACTTGAAA CCGTCTCTGT	3180
TTTTTCCAAA ATGCGGTCTG CTAGAGTTGA TTTTCCGTGG TCAATATGGG CGATAATAGA	3240
GAAGTTACGG ATCTTCTCCT GTCGTTTTTT CAATCTTCT AAGTTCATGA TTTCTTCTCT	3300
TTCAGGGTAT CTATTTATTA TAAATTGTTT TTGATATTTT GACAAGACCA TACCTGCTA	3360
GGAGTACTAA TCTTCAGCGA CAAAGCCGTC ATTTTCGATA AAGTGGTGT CTGTCAATTC	3420
TTGGTCTGTA AAGACAATCC CGTGAAGGAC ACCACCATAA ACAGCTCCTC CATCCATTCC	3480
AATCTTGCCA TCTTCTGTAG TCCAAAGCTC AGATGTACCG CGTTCTTGCT GTAACAAACC	3540
ATAGACCGGT GTATGACCGA AGACAATGGT TTTTCCAGTA TGATTTTCAG CTCGGTGGAA	3600
TGGTTTTCTA AGCCATACCT TTTTATAATC TGTGTTTTCA TGCCAGTCGT CCAAGGTCAA	3660
ATCAATACCT GCGTGAACAA AGATATACTT GTCTGTCTCT ACTACAAATG GCATTTGACG	3720
AATGAATTCG ACCAAGTCTG CCGCTTCAGC GCAACCCGC TTGGCATCTT CTACTCCATC	3780
AACTGGTGCA TCCAAGGGAC GACCTAGGAT AGAGTTAATG GTTGATCTC CACCATTGCG	3840
ACTATAATGG TCATAACTTT CTTCTGGGTC ATCTAGCCAA GTCAAAAACA TATACTCGTG	3900
GTTTCCGGAC AAACAGATAG CCCCTTGATT GTCCACCAAG TCCTTGACCA TTTCAAGAAC	3960
ACGGTGAATA TCCTCACCTC TGTCATCAA ATCACCTAGA AAGAGCAACT GGGGCTGACC	4020

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ATCCCAGGTT TTGAGAAGGT CTTCCAGCAT CCCAGCTTTT CCGTGAACAT CTCCAATTAC	4080
ATAATAATCT GTCATCTTAT TTCTCCCTGT TTCTCAACAA TTCTCTTGCT TCGTCAGGG	4140
CTGCTTCTGT CACATCATCA CCTGCCAACA TCTTGGCAAC TTCCTCCACT CGCTCTTCGA	4200
CCGTCAAGAG ACGAACAGTC GAAACCGTTG AATGGTCATT ACTAATCTTC TCAATAAAGA	4260
ATTGATAATC TGCAATCGCA ATTACTTGTG GCAAAATGGGA GATAGCCAAA ACCTGACCAT	4320
GCTGACCAAT TTTATGAATT TTCTGAGCAA TAGCTTGAGC AACACGACCT GAAACTCCCG	4380
TATCCACCTC ATCAAAGACA ATGCTAGTCT TGCCTTCTTT ACGTGAAAAG GCAGACTTAA	4440
TGGCTAACAT GAGACGAGAT AATTCCTCTC CAGAAGCAAC CTTAACCAAG GGTTTAAAGT	4500
CTTCTCCAGG GTTGGTTGAA ATATAAACT CAACCATTTT ATTTCCCTCA CGACTGAATT	4560
TTCCCTTACT AAAACGAACC TGAACTGGG CTTTTTCCAT ATAAAGATCT TGCAGTTCTT	4620
GTTTAATCTC AGCTTCGAGT TGCTGAGCCA AATTATGACG AGCAGAAGCA AGTTGACCTG	4680
CCAAATGAC AAGATTGACT TCCAACTTCT TAAGCTCTGC TTCCATGTCC TCAGACGAAA	4740
GATTATTGCC TGTCAAGAGA TTGTATTCTT CCGTAATCTT GGCAAAATAA AGCAAAACAT	4800
CATCAACAGT CCCACCATAC TTACGAGTAA TAGTATGAAG GAGGTCCAAA CGATTCTCAA	4860
CCTGCATCAG GCGATTGCCA TCAAAATCAA GGTCTCAAT GATAGCTTCC AAACGTTTGC	4920
TAATGTCTTC TAAAACATAG TAGGTCTCAG ACAGATAGCT TGAAATTTCA CGGTATTCAG	4980
GATCATACTC TTCGACACTT TCCATGTCTT TCATAGCTGA ACGAACATTG GCCAGACTTG	5040
AAAAATCTTC ATTGTCCAAC ATACTGTAGG CATTGGTCAG TGTATCCGCA ATATTTTGT	5100
GGTTGAGGAG TTTATCTCCG TCTTGATTGA GAGCCAAGTC TTCTCCAGCC TGCAAGTTTG	5160
CTGCCTCAAT CTCTGCCATT TGAAATTCCA ACATTTGAT ACGTGCCTTG TGTTCCTGTT	5220
GGTTTTTCTT GACTTCCAGA ACCTGCTTGC GCATTTTCCG ATAGGCATCA AAACCTGTTT	5280
GATAGGTTTC TTTCAAGTCC CAAAAGCGG CATCACCAAA TTCATCCAAC ATCTGGATAT	5340
GCAGTTGGGG ACGCATTAAAC TCCTCATGGT CATGCTGACC ATGAATATCT ACAAGATGTT	5400
GCCCAATAGC TCGCAAAACA GACAGATTAA CCATCTGACC ATTTACACGG CTGATACTAC	5460
GACCATTTTG CAAGATTTCC CGACGGATGA TAATTTTCATC ACCTAATTCT AAACCTTGCT	5520
CATCAAAAAT TTCCTGTAAA AGACGACTAT TCTCAACTGA GAAAAGCCCC TCAATCTCTG	5580
CCTTTGGTGC ACCATGACGA ATAACATCTG TCGTCGCACG AGCTCCCAAC ATCATATTCA	5640
TGGCATCAAT GATAATCGAC TTCCCTGCAC CCGTTTCACC AGTCAGGACA GTCATCCCCT	5700
TTTCAAAATT GAGGGAAATA GCCTCAATAA TGGCAAAGTT TTTTATCGAA ATTTCAAGTA	5760

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ACATATAGAC CTACCAATT TTTACTTGTT CAAAGATTTC CTCTGCTAGA CTTCCTACTTC	5820
TGGCAATGAC TAAAATCGAG CTATCATCAG TCAAACAGCT AAAAATCTTG TCTGCAAAAG	5880
TCTCGATTAA CTGAGCTTTT ACAAAGCCG TATTTCTGG AATAACTTGG AGATTGATCA	5940
TCTTATCCAT CAATTCAGCC GATTCGATAT TGTCTTCAGC CAGTTGCAGA CTTTTACGA	6000
TTGATTTTGG CAATTCGTAG ACATAGGTGT TGCTCTCAA AGGAATTTG ACAATACCTA	6060
ACTCTTTGAT ATCTCGGGAT ACCGTCGCCT GAGTGGCAGT GATACCTGCT TCTTCAAAT	6120
GTTCTACAAT TTCTTCTGC GTGCCGATTT GATAATCTGT CACCAATCTT CTAATTTTTT	6180
CAAGTCTCTC TTTTATTC ATTTTAAAT TGACTATGCG CCCTCTCTAC TGCTTCTTTA	6240
ATCTCAGCAA GAATCTGATT GCTTGCTGAC TTTCTTTTT TCAAATACGC TAAAAATCA	6300
ATATTTCCAT GTCCACCTTG GATGGGAGAA AAGTCCAAGC CAAGGACTGA AAAACCTACC	6360
TCTACTGCCA TAGCTGTAC AGATTCAAGG ACATTCTGAT GAACCTTAGC ATCTCGAATA	6420
ATTCCATTTT TCCAATCTG CTCACGTCTT GCCTCAAAT GAGGTTTGAC AAGTGCTACC	6480
ACCTGACCTT GATCAGCCAA GACACGGTGC AAGGCTGGCA AAATCAGACT AAGGGAAATG	6540
AAACTCACAT CAATACTGGC AAAGCTCGGC TCCTGCTCGA AATCAGTCTT TTCAGCATAG	6600
CGGAAATGA ACTGCTCCAT GCTGACAACT CGTGGGTCTT GCGTAATTT CCAAGCCAAC	6660
TGATTGGTAC CAACATCGAC TGCAAAGACC AACTTGGCAC TATTCTGTAG CATGACATCG	6720
GTAAACCTC CAGTAGAGGC CCCGATATCA ATCGTAGTCG CGCCATCCAC CGACAAATCA	6780
AAGACCTGCA AGGCCTTTTC CAGTTTCAA CCACCAGGC TGACATACTT GAGTTTCTCC	6840
CCCTTGAGTT TTAATTCGGT GTCATCTGGA ATTTCTCTC CTGGCTGTG AAACCGTTCT	6900
CCATTAAGGA CTGCTACGAC TAGGCCAGCC ATCACACCTC CTTGGCCTG CTCTCTCGTT	6960
TCAAACAACC CCTGTTTATA AGCTAGTACA TCCACTCTT CCTTAGCCAT TGATTCTCAA	7020
ACTTTCTACT ACACTTACAA TCGATTCTGT TCAAAGGGA AGCTGCTGGG CAATTTCTTC	7080
TAATTTTTCA TTAGCTTGAT CCAGGGTTG GTTACAAAAG GCAATGGACT CTTCCAAGCC	7140
CAACAGGGCA GGATAGGTG ATTTTCTGC CTGCAGATCC TTTTGAGTG TCTTGCCGAT	7200
TTCTCAAAA CTAGCTGTCA CATCCAGTAC ATCATCTCTG ACTTGAAAAG CAAGTCCAAT	7260
CAATTCACCC ACAGTTTTC GCTTCACCTG CATTCAGGT GACAATTCAG CTATAATAGC	7320
TGCCGCTTG AAGGGATAGG CTAGTAACCT CCCAGTCTTA TTGGCATGAA TAGTCTGAAG	7380
TTCTTCCAAA GACAAGTGCT GGTGTTCCGC TCCCATATCC AAAACTTGCC CTGCTACCAT	7440
ACCCAGACTA CCTGAAGCAA GGGATAAGTT GGCAATCAAG TCCACCTTAA TCTGACTTGG	7500
CAAATCTGCC TGCGAATCA AGGCATATGA GTCTAAGAAT AAGGCATCTC CAGCCAAAAT	7560



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GGCCATAGCT TCACCGAATT TCTTGATGATT GGTAAACCGC CCTCTTCGAT AATCGTCATC	7620
ATCCATAGCA GGAAGGTCAT CGTGAATCAA GCTCCCTGTA TGAATCATCT CTAAGGCAGT	7680
AGCTACCTGC GCGTGAGCAG GTTTGATGGT AACCTGCAAG GCTTCCAGAA CTTCTAACAA	7740
GAGAAAAGGC CGAATACGCT TGCCACCAGC ATGAATAGAA TAGAGAACAG ACTCCCGTAA	7800
ACTAGAGGCA AACTGCTGGT CTCCATAAAA ATCTTCCAAA GCCGACTCGA CAAGAGCTAA	7860
TTTTTCTTGC TTTTTCATTC AAAATCACCT TCTGTTCCGT CTTCTTGAT GACCTTGACC	7920
AAGGTCTTTT CAGCCTTGTC CAGCGTAGCT TGGAGCTCTT TTGACAAGAC CATGCCCTTT	7980
TGAAAGGCAG TAATCGCATC TTCCAGAGCA ATTCACCAT TTTCCAACT TTGGACAATG	8040
GTTCAGTCT CTGCTAGATT TTCTCAAAT TTCTTTTGT TTGACATCTT TAACCTCTAA	8100
TTCTACTTGA CCATCTCGCA TCAAAGCGT TACTTGGTCT TTTTCTTCA AACTCTCAAC	8160
CGAATCTACA ACGGACTCTT CTTTTTTGAC AATAGCATAA CCACGCGCCA CGATTGGCT	8220
AGTATCCAAC ATGAGCAAAG CTTCCGAAAG TCGCTTGGCC TCAGCAACCT TGGCGTCATA	8280
AACTAACGCC ATTTGGCTAC CTAAGAGCTT GTCCAACGT CCTAAACGGT CTTGATAGCG	8340
TTGGATTTTG GTAACAGGTG ATAATTGTAC TAATTGATGA GTTCTTGCTT GAACTAATTG	8400
TTTGTATCA GAAATCCGAG TTCCGAACT TTGTTTCAA CGCAGTTGCA GTTGGTCCAA	8460
GCGTTGCAA TAACCGTCAT ACAAGCGCTC AGGTTGTCTA AAGATAACAG ACTGACTGCA	8520
TTTTTTCAA GCCTCTTGT TCTTAGATAG AACATTTCCG ACTGCCGTTA CCATCCGTTT	8580
TTCTGATTT TGCAAATGAG CTAATACATC CAACTTGGTC ACAGGTGTTG CCAGTTCAGC	8640
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CTCATGCCCC AACTAGAGA TAACTGGCAA ACGAGATTCA AAAATAGCTC GTACCACAAT	8760
TTCTTCGTTA AAGGCCGAGA GATCCTCAAT AGAACCACCT CCACGACCAA TAATGAGCAA	8820
ATCCAAATCG TCCCGTTGAT TAGCACGCGC AATATTTCTA GCAATTCCT CCGCAGCCCC	8880
TTACCTTGA ACCTGGTCG GATAAAGAAG GATGTCAACA CCTGGGAATC GCCTGCTGAC	8940
GGTCGTGATA ATATCTCGAA TAACGGCTCC ACTACGGCTG GTTACTACAC CAATTCCTT	9000
AGAAAATTGG GGCAGAGCTT GCTTGAAGCG TTCTTGAAAC AGGCCTTCTT CTGTCAATTT	9060
TTTCTTAAGT TGTTCAACT GAATCGCAAG CGCCCCAACC CCATCAGGCT CAGCTTTTTC	9120
AATGATGATG GAGTAGCTAC CACTTGGTTC ATAGACCTGT ACACGCCCAA TCACATTGAT	9180
CTTCATTCTT TCTTCCAGGT CAAACCCTAA TTTCTGATAA ATCCCAGACC AGATGGTCGC	9240
TTGAATAACT GCATGGTCAT CCTTTAGGGA GAAATATTGG TGAGTAGGTC GTTTACGAAA	9300

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GTTGGAAACT TGACCAGTTA AATAGACCCG TTCCAAGTAT GGGTCTTTAT CGAATTTTCAT	9360
TTTCAGATAC TTGGTCAAAG TTGTTACCGA TAAATACTTT TCCATCTCCA CCTACTATTC	9420
ATTTACTTGC TCTTTCATGG GTATTATTAT ACCAAAAATA TGCCTAAAAA TCTCCATTTA	9480
TGTACCATTA TGAGGGAAAA ATAGAAAAAG GAGGCAAGGC CTCCACATGT GATTATTTGC	9540
TGTTTCGAGC TTCTTCCAAA ATCTTTGCAA TCTTGGTCGT CAACAGGTCG ATAGCCACGG	9600
TATTGCTAAC CCCTTCAGGA ATGACGATAT CAGCATAACG CTTAGTTGAC TCGATAAACT	9660
GGTGGTACAT TGGTTTGACC ACACCTAAGT ACTGGTTAAT AACGCTATCA AGGCTACGGC	9720
CACGCTCCTC CATATCACGC TTGATACGAC GAATAATGCG CACATCGTCA TCCGTATCCA	9780
CAAAAATCTT GATATCCATC AAATCGCGCA GACGCTTGTC CTCCAAGACC AAAATACCCT	9840
CAACGATAAA GACATCTTGA GGTTCCTGAC GATAGGTCTT GCTACTCCGT GTATGCTCTG	9900
TATAGTCGTA GGTCGGGATG TCCACCGGAC GCCCTGCCAA CAATTCCTTA ATCTGCTCGA	9960
TCATCAAGTC TGTATCAAAG GCAAAAGGAT GGTATAGTT GGTTTTGACG G	10011

(2) INFORMATION FOR SEQ ID NO: 77:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 5365 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 77:

CGTGTGGTCT TAAAAATAGA AGACAAAGAA CAACTGTTG GAGGCTTGT CCTTGCAGGC	60
TCAGCCCAAG AAAAAACCA AACAGCTCAA GTTGTGGCTA CTGGACAAGG TGTTCGTACC	120
TTGAACGGTG ACTTGGTTGC TCCAAGTGT AAACTGGAG ATCGTGTCTT AGTTGAAGCC	180
CACGCAGGTC TTGATGTCAA AGATGGCGAT GAAAAGTACA TCATCGTAGG CGAcTAACAT	240
TTTGGCAATC ATTGAGGAAT AGAAGGAGAA AGTAAGTATG TCAAAAGAAA TTAAATTTTC	300
ATCAGATGCC CGTTCAGCCA TGGTTCGTGG TGTCGATATC CTTGCAGACA CTGTTAAAGT	360
AACCTTGGGA CCAAAAGGTC GCAATGTCGT TCTTGAAAAG TCATTCGGTT CACCCTTGAT	420
TACCAATGAC GGTGTGACCA TTGCCAAAGA AATCGAATTG GAAGACCATT TTGAAAATAT	480
GGGTGCTAAG TTAGTATCAG AAGTAGCTTC TAAACCAAT GATATCGCAG GTGACGGAAC	540
TACGACTGCA ACAGTCTTGA CCCAAGCTAT CGTCCGTGAA GGAATCAAAA ACGTCACAGC	600
AGGTGCAAAT CCAATCGGTA TTCGTCGTGG GATTGAAACA GCAGTTGCCG CAGCAGTTGA	660
AGCTTTGAAA AACAAACGCCA TCCCTGTTGC CAATAAGAA GCTATCGCTC AAGTTGCAGC	720

629

CGTATCTTCT CGTTCTGAAA AAGTTGGTGA GTACATCTCT GAAGCAATGG AAAAAGTTGG	780
CAAAGACGGT GTCATCACCA TCGAAGAGTC ACGTGGTATG GAAACAGAGC TTGAAGTCGT	840
AGAAGGAATG CAGTTTGACC GTGGTTACCT TTCACAGTAC ATGGTGACAG ATAGCGAAAA	900
AATGGTGGCT GACCTTGAAA ATCCGTACAT TTTGATTACA GACAAGAAAA TTCCAATAT	960
CCAAGAAATC TTGCCACTTT TGGAAAGCAT TCTCCAAAGC AATCGTCCAC TCTTGATTAT	1020
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TGCGGATGAT GTGGATGGCG AGGCTCTTCC AACTCTTGTG TTGAACAAGA TCGTGGAAC	1080
CTTCAACGTA GTAGCAGTCA AGGCACCTGG TTTTGGTGAC CGTCGCAAAG CCATGCTTGA	1140
AGATATCGCC ATCTTAACAG GCGGAACAGT TATCACAGAA GACCTTGGTC TTGAGTTGAA	1200
AGATGCGACA ATTGAAGCTC TTGGTCAAGC AGCGAGAGTG ACCGTGGACA AAGATAGCAC	1260
GGTTATTGTA GAAGGTGCAG GAAATCCTGA AGCGATTTCT CACCGTGTG CGGTTATCAA	1320
GTCTCAAATC GAAACTACAA CTTCTGAATT TGACCGTGAA AAATTGCAAG AACGCTTGGC	1380
CAAATTGTCA GGTGGTGTAG CGGTTATTAA GGTTCGAGCC GCAACTGAAA CTGAGTTGAA	1440
AGAAATGAAA CTCCGCATTG AAGATGCCCT CAACGCTACT CGTGCAGCTG TTGAAGAAGG	1500
TATTGTTGCA GGTGGTGGAA CAGCTCTTGC CAATGTGATT CCAGCTGTG CTACCTTGG	1560
ATTGACAGGA GATGAAGCAA CAGGACGTAA TATTGTTCTC CGTGCTTTGG AAGAACCCT	1620
TCGTCAAATT GCTCACAATG CAGGATTGTA AGGATCTATC GTTATCGATC GTTTGAAAA	1680
TGCTGAGCTT GGTATAGGAT TTAACGCAGC AACTGGCGAG TGGGTTAACA TGATTGATCA	1740
AGGTATCATT GATCCAGTTA AAGTGAGTCG TTCAGCCCTA CAAAATGCAG CATCTGTAGC	1800
CAGCTTGATT TTGACAACAG AAGCAGTCGT AGCCAATAAA CCAGAACCAG TAGCCCCAGC	1860
TCCAGCAATG GATCCAAGCA TGATGGGCGG GATGATGTAA GCTTTCTATA GAAAACAACT	1920
TATAAAAAAC ACAAAGGAG GGAATGACTA ACCCTTCTTT TTATAGGCTC TTTGTCAACT	1980
GTAGTGGGT GAAGTCAGCT AAGCTCGAGA AAGGACAAAT TTCGTCCTTT CTTTTTTGAT	2040
GTTCAAAGCG ATAAAAATCC GTTTTTTGAA GTTTTCAAAG TTTCGAAAAC CAAAGGCATT	2100
GCGCTTGATA AGTTTGATGA GATTATTGGT CGCTTCCGGT TTGGCGTTAG AATAGTGATG	2160
TTGAAGGGCG TTGATAATCT TTTCTTTATC TTTGAGGAAG GTTTTAAAGA CAGTCTGAAA	2220
AATAGGATGA ACTTGCTTAA GATTGTCTC AATAAGTCCG AAAAAATTCT CCGGTTCTT	2280
ATTCTGAAAG TGAAACAGCA AGAGTTGATA GAGCTGATAG TGATGTTTCA AGTCTTGTA	2340
ATAGCTCAAA AGCTTGCTTA AAATCTCTTT ATTGGTTAAA TGCATACGAA AAGTAGGACC	2400
ATAAAATCGC TTATCACTCA GTTTACGGCT ATCCTGTTGT ATGAGCTTCC AGTAGCGCTT	2460

530

GATAGCCTTG TATTCATGGG ATTTTCGATC CAATTGGTTC ATAATTGAA CACGCACACG	2520
ACTCATAGCA CGGCTAAGAT GTTGTACAAT GTGAAAGCGA TCCAACACGA TTTTAGCATT	2580
CGGGAGTGAA ACAGTCTGGG AGACTGTTTC AGCCTGAGCC TAGAAATTTG AAAGCGAAGC	2640
TGTTTAGCCA AGTCATAGTA AGGACTAAAC ATATCCATCG TAATGATTTT CACTTGACAA	2700
CGAACGGCTC TATCGTAGCG AAGAAAGTGA TTTCGGATGA CAGCTTGTGT TCTGCCTTCA	2760
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GTGAAGGCAT ACTCATCCA AGACATAATC TTGGGAAGCC GAGAAAAATC ATGCTCAAAG	2880
TGAAAGTCAT TGAGCTTGGC AATGACAGTT GAAGTTGAAA TGGCCAGCTG ATGGGCAATA	2940
TCAGTCATAG AAATTTTTC AATTAACTTT TGAGCAATCT TTTGGTTGAT GATACGAGGG	3000
ATTTGGTGAT TTTTCTTAC CAGGGGAGTC TCAGCAACCA TCATTTTGA ACAGTGATAG	3060
CACTTGAAAC GACGCTTCT AAGGAGAATT CTAGAAGGCA TACCAGTCGT TTCAAGATAA	3120
GGAATTTTAG AAGGTTTTG AAAGTCATAT TTCTTCAATT GGTTCGCA CTCAGGGCAA	3180
GATGGGGCGT CGTAGTCCAG TTTGGCGATG ATTTCTTGT GTGTATCCTT ATTGATGATG	3240
TCTAAATCT GGATATTAGG GTCTTTAATA TCGAGCAGTT TTGTGATAAA ATGTAATTGT	3300
TCCATATGAA TCTTTCTAAT GAGTTGTTTT GTCGCTTTTC ATTATAGGTC ATATGGGACT	3360
TTTTTTCTAC AACAAAATAG GCTCCATAAT ATCTATAAGG GATTACCCA CTACAAATAT	3420
TATAGAGCCG AAAATTCACA TCTAATATAT GCAGACTACT TTGAAATGAA ATTAACAAAA	3480
TTATTAAAGG ATGACACAAA AGTTTTTGAA AAATCTACAT TCAAATTTGT AGAAGGATAT	3540
AAAATATACC TGACAGAATC TAAAGAATCT GGAATTAAAC AAATGGACAA TGTCATAAAA	3600
TATTTTGAGT TTATTGAATC TAAAAGTATT GCTTTATATT TTCAAAAACG ATTAAATGAG	3660
CTGATAGATT AAATAGCATT TTCTCTGTTG AGATATTGTT TTTAAAAATAT TGTACTAAAT	3720
GATTGATGCT ATGTGGAAAT ACAAAAAAAT GTTTTGTATA CGAAGTTGAC CTGTATTTTT	3780
TATACTAATC ATTTTCGTAT TTTTGTATT AAACGATATA AGTTTGTGT AAACCTTACA	3840
GGAATAAAGA CATTAAAAAA TAACAGTATA TCTATTGTT TTATATATT TACGAATTCT	3900
GCATAAATCT CTTTCTAGTA ATGTGTGTA ACTCTGCTAT AATAGATTA TTCTTTTTG	3960
TGTTTACACA ATTTATTTTA TACTACCAAA AAAGGTCAGG ATTTGTTC TGACCTTTGA	4020
CAACTTTACC GATTCTTAG TTCTACATAG CGCTGTACC AAATGTTTAC ATAGGCTTCT	4080
GAGAAAGGAC CACGTCCATT GTTAATCCAA TCAACAAGAA TTTTGACATG TTCTTTTAAA	4140
ATATAGTCCA AGTCATCAGA ATAATTCATT TTGCGTTGT GACGCTCGTA CTCTCAACG	4200
TCCAAGAGAC GTTTTCCCC ATCTGTAAAA ATTTTAACAT CCAAATCGTA ATCAATATAC	4260

631

TTCAGTGCCTT CTTCATCCAG ATAGTAGGGG CTAGCCATAT TGCAATAGTA AGAAGTTCCA	4320
TTATCACGAA TCATGGCAAT GATATTAAAC CAATATTTCT TGTGAAAGTA AACAAATAGCC	4380
GGTTCTCGAG TGACCCAACG ACGACCATCA CTTTCGGTAA CAAGTGTATG ATCGTTGACA	4440
CCAATAATGG CGTTTTCTGT TGTTTTTAGT ACCATGGTGT CCCGCCAAGT TCGGTGGAGA	4500
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ACTAACCAAC TTTCTACAAT TTATAAGTTT ATCATTTACT ATTGTACCAT AAAATTACCC	4620
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CGAAAAATCG TAGCCCTTTC GTGCTAAAAC TTGAGTTAAA CGCTGCTTCA GTTCGTATCC	4740
TTCATACTTT CGGGCATACT TAGTATATTG CTTATCAAGT TCCTTGAAGA TGAGTTCCTG	4800
AGTCGTTTCT TCATCAACTT GACTATCCAA TTCGTCAAAG GCAATTTTAG CATCAAAATA	4860
AGAGAAGCCC TTGTTAGTCA AGTTCGGAT AATCTTATCT TGCAGGGCAC GAGCTGGAAG	4920
TTTTCCCTCA TATTTTTTCA ATAGTTTATT GGCTACACGT TGAGCAACTT CCGAAAAATC	4980
AAAATCATTC AAGATTTCTT CTATAGTAGA TTTTGAAATT CCTTTTGTG CTAATTTCTG	5040
AGTCAGTACA TAAGGTCCCT TGTCTCCTGA AAGTTGATTG GCATTGATGA TAGCATAAGC	5100
GTACTGGCTA TCATTAATCC ACTTCTCTTC TTTAAGATTA GCAATGACTT GAGAAACGAT	5160
GTTTTCAATTA ATATCATATT TTTTCAGATA TTCTCTGACC TCTTTTTCAG TACGTGCTTT	5220
AAAGGATAAG TGGTAGAGGG CCAGATTCTT ACCATAAGAA AATTGAGCAA AGTCTTGAAT	5280
CTCTTTCAAT TCCTCTTCGC TTATCACCTT ATCTCTCGAT AACATAAAAC GAACAATTGT	5340
GTCTTCGGTG ATATAGCATT TGTCG	5365

(2) INFORMATION FOR SEQ ID NO: 78:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 3636 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 78:

TTTCCAGAAA GAAGTTGAGT AAAGTCTTTA TCAAAGAGAA TGACTTCCGT ATTGGAAGTG	60
ACATTAGGTT TTATTTCTAC TTTACTAGCG TCCGCCCTAG CATTTTCTAA ATCTTTAATC	120
TCTTCTGTTG CCCTATTTAT AGCCAGCTGA ATAACTGCTT GAGGATTTTC ACTCAGTCCA	180
TGAAGCTTAT CGTCCACCGA AGTATAAAGA CTCGAATGCA TGACTTGTA AATAATCAGA	240

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GTCATTGTAG AAAAAATCAG GGTGAAGACA CCGAAGTTGC GGATAAAATA ACTAAAGTCA	300
TCCGCATACC ATGTTTTTTT AAGTTTACTG AACATCTTTT AAAAGATACC CAACACTACG	360
CAAAGTTTGC AAATTCTCTG CAAAAGTGGT TCCCTTTAAT TTCTTACGGA CTTTGTAAAC	420
ATAGACTTCG ACAACCGAAA TCGTTGTATC ACTATCAAAT CCCCATAGAC GGTCAAAAAT	480
CTGCGTCTTA GGCAAAATCA CATTTTGATT TTGAAGGAAA TAAACTAGTA AATCGAACTC	540
TTTCCCCAGC AATTGACAG GAGTATCTTC AACTTTAACG GTATTGGTTG ATAAATTAAC	600
CACGATATTC CCATAAGTCA AGGTGTTTTT ATTAACTTC CCTGAACGTT TGAGAAGGGC	660
CTGAATCCGC ATTTTAAGTT CTTCTAGGTA GAAAGGTTTG GTCAGATAAT CATCCGCTCC	720
CAGTTCAAAT CCATGTCCCT TGTCAATCAA ACTTTCCTTG GCAGTCATAA TCAGAACTGG	780
TGTCGTAATT CCCTTTTCAC GCAATTCTTT TAAGACTTGG AAACCATTTT TTTCTGGCAA	840
CATCAAATCC AGCAAAATCA AGTCATAGAC ACCACTCTCA GCTTCGTAGA GACCTTCTTC	900
TCCATCAAAT ACCTGCATAA CATCCGCAAA ATCGTCTAAA AAGTCAAATA CTGAATTTGA	960
CAGACCTAGG TCATCCTCAA CCAATAAGAT TTTTATCATG AGAACTCCT CTTTATTA	1020
ACTATTATAC CAAATTTGCC TTAATAAAAA CTCAACTCTC TGCATTTTAC ATGAGATAGC	1080
TGAGTTTCT TTTTATTTA GGCTTATTTA TGCATTTCCG TATTGAAGAA CAACTGCTTC	1140
GACTGCAGCT TTTTCACGGC TAATCAAGTC AACACGCGCT GCAATTTCTT TGATTTCCAT	1200
ACCGATGTTA CGGCTAAGAG CAAGGTCAGA AAGTTGCGGT TCAAAGAACT CTTGTATTC	1260
CGCCAAGCGT TGCTGAGTCT TAAATACATG AGCAGGAAGG ATAACAAAGC TATCAAAGCT	1320
CATATCTCCT CCAAGGGCTG CCTTAATCCA AGCCAGTTT TCACGCGCCC AAGACCAAGC	1380
TGTTTTCTGA GTTGCTTGAT GAGCTAGGAA TTGGTAATAC CAAGCAGACA AGTCTGTGG	1440
TTTGACCACA AATTTGTCCT TCCAAGAAGT AATCAGGTTT TGGATATTAT CCGCATCTGT	1500
ACTGTATGCA AGAGCTGCTG CCAACTGGCG TTTAAAGACA GCATCTGTTG CGTGAGTATA	1560
AGTATCAAGA TAAAGTGCTA ACAAGTCTTT AGTCTCATGA TGTTCATCT CATTAATCAG	1620
AACTTGTGAG CGAATAGCTG CTGGGAGTCC TGCAAGATTC TCCTTGTTG TTGCGAAGAT	1680
TTGGCTAGCG ACTTGACTAG CTTCTGCATC ATTTGAGCGA ATCATCATCG AAACAGCCAG	1740
CTGACGAACC AATTCATCCT CATCTGATTC TCCGTCTTTA GCTTCAAAAC CAAGACGGTC	1800
ATAGTTATGA CGAGCCAATT TAGCAACCAG TCCTTTGAAG GCTGTTTCAG CATCCGTTCC	1860
TTTATCAATA AAGCGCTCAA GGGCTGAAAT CACTTGAGAA ACAGCTGAAA CCACCAGATA	1920
AGACTCTTCC TTAGCAAGTT TATCAAGAAC TGGAAGCAAG TCTGCATAAG AAATGTGCCC	1980
TGCCTCAGCC AACAAACGAC GTTCTTGAAC AATTTGCAGT TTGCTTGTCT TATCAAGTGT	2040

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CTCTAGCTCA GCAAGAACAG CTGCTAACAA GTCTCCTTGA TAGTCGGTAA TATAGTGGGC	2100
AGTATTTTCA GTGTTGAGAC GAAGAGCTCC TTCATTTTCA GCAAGAAGAG CTGCGTAGCC	2160
AGGGATTTCG ATACTTTCAG TTTCGAGTGT ATCAGGCAAG CCTTTCAGT TGCTATTGAG	2220
GGGCACCACC CAGAGACGGT TCTTGTCTTC GTTCTCACCG ATGAAGAATT GTTTTTGTGA	2280
AATCTTCAAG ACATCATTTT CAACTTTAAC AGTAAGAACT GGGTAACCAG GCTGTTCCAA	2340
CCAAGAATCC ATGAAGGCTG CGACATCACG TCCTGACGCT TGACCAAGGG CATCCCAAAG	2400
GTCACTACCA ATGGTGTGTC TGTATTGGTG TTTTCAAAG TAGGCGTGCA AACCTTTAGC	2460
AAAATCAGCA TCTCCTAGCC AACGGCGAAG CATGTGCATG AGACGGCTTC CTTTGGCATA	2520
GACGATAGCG CCGTCAAAGA GTGTATTGAT TTCATCTGGA TGTTTAACTT CGACGTGGAC	2580
AGACTGAACG CCATCAGTAG CGTCACGTTT AAGAGCAAGA GGTACTCCAC CTGTTTGGAA	2640
ATCTTCAAAG ATATTCCAGC TTGGTTCGAT GGTATCCACA CAGACGTATT CCATCATATT	2700
AGCGAAACTT TCATTGAGCC AAAGGTCATC CCACCATTTC ATAGTCACGA GGTTCCTCAA	2760
CCATTGGTGA GCCAATTCAT GGGCCACAAC AAGGGCAACT TGTGACGGC TAGCAAATGT	2820
AGAGTTCTCA TCGACAACCA AGTAAACTTC ACGGTAGGTC ACAAGACCCC AGTTTTCCAT	2880
AGCACCAGCT GAGAAGTCAG GAAGGGCGAT GTGGAGAGAT TGAGGAATTG GGTACTTAAC	2940
TCCATAGTAA TCTTCGTAAA ACTCGATAGA GCGAACAGCG ATATCCAGTG AGAAATCAAG	3000
ATTTGAAAGT GGATGTGCTT TGGTTGAGTA GACACCTACC AGGGTACCAT TTTTAGTTTT	3060
AGCGGTCACC CCTTGCAAAAT CACCAGCAAC AAAGGCCAAC AAGTAAGAAG ACATGCGAGG	3120
TGTTGTCTCA AACTTCCAGA TACCTGTTTC CTTACGGTTT TCAACATCGA TTTCTGGCAT	3180
GTITGACAAG GCCAATTCAC CTTCTGCTTG GTCAAAGCGA AGAGAGAGGT CAAAAGTTGC	3240
TTTGGCTTCA GGCTCATCCA CACATGGGAA AGCTTCGCGC GCAAAATGGC TCTCGAACTG	3300
AGTAGACAAG ACCTCCTTCT TGAATCCATC AACTGTATAA TAAGAAGGCT AAATCCCTGT	3360
CATGTTGTCT GTAATTTTAC CAGAAAAGGC AAGAACCAAT TCAACTTGAC CAGCCTCAGC	3420
CAATTCGATA TGAAGGGCTT CATTGTCATG GTCAACTGTA AATGGACGAG CTTGACCTGC	3480
AACTTCTACA GAGGTGATTT CCAAATCTTT TTGGTGGAGG GAGATGCGGT CACTCTGTGC	3540
TTGACCAGTG ATGGTCACTT TCCAGAAAA AGTCTTGGTC TCACGACTCA AATCTAAAAA	3600
TAAATCATAA TGTTCAAGAA CAAATTGCTT AATGGG	3636

(2) INFORMATION FOR SEQ ID NO: 79:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 5066 base pairs

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(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 79:

ATAGCGTGTATAAATCGATT	TTAGAGGTAC	CATAAGCCAC	CTCCTACAAA	TAGAAACCGA	60
TATAAATCAA	TGCCTTCCAC	CCTTAGACTT	CCCTAGTTCC	TGTCTCAAGC	120
TTTGAAACAG	GAATAAGTTA	ACCAATTCAT	ACCAATAGCT	AGCAGAATAA	180
AATGCCCCAT	AACCTTGATAT	CTGTCACATT	TCTCAAGACG	GTATTGAAAA	240
AACAACTGTC	CAAGCAAGGC	TAAAAAGAGA	ATAGAAGGGG	ATGTAAAACC	300
ATAAAAAATT	GGAAAAAAT	TACTATTCT	GTTGGCCTTT	TCAATCCAGT	360
AAAGTACGGT	GCTAAAAGTA	AGAATTTAAA	CAAATGTTCC	ATCACCGACA	420
TTTTGATAGC	GTTTTCTATT	ATTTTATTAT	ATCAAAAAAA	TCCGGAACGT	480
TTCTACTTTT	TTATTTGCGT	TTTCTTGCGA	TGAGATGAAT	CGGTGTTCCC	540
AGGCCTTGCG	GATTTGATTT	TCCAAGAAAC	GCAGGTAAGA	AAAGTGCATG	600
CATTGACAAA	GATGACAAAG	GTTGGTGGTT	TGGTTGCCAC	TTGGGTGCGA	660
TGAGACGTTT	TCCTTTGTCT	GTCGGTGTG	GGTTGATGGC	AATGGCATCC	720
CGTTCAAGAC	AGCTGATGGA	ATACGTGTAT	TTTGACTTTT	GCTGATTTGC	780
CAGGAAGTTT	GTGGAGACGT	TGCTTGGTTA	AAGCTGATAC	AAAGATAATC	840
GCAGGTATTG	GAAGTGTCTA	CGGATATCTT	CTTCCCAGTT	TTTCATAGTG	900
TTTCAAGCGT	ATCCCACTTG	TTGACCACGA	TAATCATCCC	TTTACCAGCT	960
ATCCTGCGAT	ACGCTTGTCG	TACTCAGCAA	TGCCTTCTTC	CGCATTGATG	1020
CCACATCTGA	ACGGTCAATA	GCACGCATGG	CACGCATAAC	AGAGTATTTC	1080
CATAAACCTT	ACCAGACTTA	CGCATACCAG	CCGTATCAAT	CATGGTAAAC	1140
CTGTATCTGT	AAAGTGGGTA	TCAATGGCAT	CACGAGTTGT	TCCAGCAACA	1200
TAACACGGTC	TTCTCCCAAG	ATAGCATTGA	TCAAGCTTGA	TTTTCCAACG	1260
CAATCAAGCT	AAACTTAATG	ACATCTGGAT	TTTCTTCCTC	ATATTCATTT	1320
CTACGATCGC	ATCTAGCACA	TCCCCTGTAC	CGATTCCATG	GACAGATGAG	1380
GTTCAACCAA	ACCGAGAGCA	TAGAAATCAT	ATATATCATT	TCTCATCTCA	1440
CCTTGTGAC	TGCGAGGATA	ACTGGTTTGT	GGGTCTTATA	AAGCTTACGA	1500
CGTCTGCATC	AGTAATTCCT	TCCTTACCAG	ACACGACAAA	AACGATAACA	1560



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CCATGGCAAT TTCTGCCTGG TGCTTGATTT GTTCCATGAA AGGAGCATCG ACATCATCAA	1620
TTCTCCTGT ATCAATCATG CTAAGAAGAAC GATTGAGCCA CTCACCCGTT GCATAAATAC	1680
GGTCACGTGT CACTCCTTCG ACATCTTCTA CAATGGAGAT TCGCTCACCA GCGATCCGAT	1740
TAAATAGGGT TGATTTCCCA ACATTGGGAC GTCCTACAAT GGCAATAGTT GGTAGGGCCA	1800
TAATTTCTCA CTTTCTACAA TAATTTCTTC TGTCAAGAT TTTTCTAGT TGAGCTTGGT	1860
TCAGCTTGAC CAACTGTTT TGCTAGGCGC TGAATCCAGC TTGTGGTCGC ACGCGCCCCA	1920
GCATAGTCAG CCTGAACACG GTCATAAGCT TGGATTGCCT CAGTTGACTG TTCTTGGTAT	1980
TCTTCCTCAA AGACAACATT CTCTAGTGGC AGTCTCGGTT TCATATCATG ATGTTGATTT	2040
GGCACACCCA GTGCCATCCC AAAGACAGAA TAGGTGTAGT CAGGTAGGTT AAAGAGCTCT	2100
GCCACTTCTT CAGACTTGTA TCGAACCAAA CCGATAATCA CACCACCATA GCCCAAGCTT	2160
TCAGCTGCCA ACAAGGCGTT TTGTCCAGCA AGAGCTGCAT CGACCGAACT AATCAAGAGA	2220
CCTTCCACAC CTTGGGGTTG GAAGGTGTCG GTATGAAGTC GGGCTCCCTT TTCTGCTCGG	2280
TTCAAATCTC CGACAAAGAG AAGGAAAACA GCAGACTGGC GAATGGCTTC TTGAGGTACC	2340
AATTCATACA AGGCATCTTT CTCTCTTGA CTTCTGTACCA CAATCACAGA GTAGGATTGG	2400
AAATTTCTCC AAGATGATGC CATCTGGGCT GCTGTCAAAA TCTCATTTAA GTCTACTTGG	2460
GGAATTTCTT GCTCTTTAAA CCTGCGCACT GAAGTATGAG CTTTCATCAA TTTAATGGTT	2520
TCTGTATCG ACGGTTTACT CTTCTAAAC GAGTCTCCTC AGCCAAATAA CGGATGCGTT	2580
CCATGACCCG TCTGGCTTCC CAGGTTTCGT CATTTCCATG TTTCACTTTC GCAAAATGCT	2640
TCTCCAAATC TTCAAAGTTG AAGTTGGATG TGAAAAAGGT CGGTAAATTT TCCTGCATCC	2700
GATATTGGAG AATGACCTGC AGGATTTTCGT CACGCACCCA AACGGTTGAT TCCTCGGCGC	2760
CAATATCATC TAAAATCAGG ACCTCAGACA GCTTAATCTC ATCCACCAAG GTCTTAACAT	2820
TGCCATCACT GATAGCATTT TTGACATCAA TGACAAAGCT AGGATAGTGG AGGAGAGTTG	2880
ATGAAACACC ACGTTTTTCT GATAAATCAT GAGCTAAGGC CGCCACCATG AAACCTTTTAC	2940
CCACACCAAA GTCTCCATAT AAGTAAAGAC CTTTTCGAAT AGCTGGATAT TGCTCCACGA	3000
AGGCTAGTAG CTTTTCAAAA ACTGGTAAGC GCCCAAAATC ATCCAAGTCA ACTTGAGCCA	3060
AACTAGCTTT CTTGAGACTG GCTGGTAGAT TGATTAACCT GAGACGGTTC TTAATAGCCG	3120
CTTCTTTTTC AGCCGCGATT AGCTCAGGAG TTTCTTCATA TGAAACATCT GCATAACCAT	3180
GATTCTTAAC CAAAATCGGC TTGTAGCCTT TGGCAATATA ATCCGTATCC CCACGGAGAA	3240
ACTGTGCACG CTCGGTGATG TACTGATTAA ACTTGGAGAT ACTGCGATTT AATTCCTTTG	3300

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GAGTTAAGGA TTCTTGCTGG ATAAAGGCCG CAACATCAGG GTCCTTCATG ATTTTCTGGA	3360
CCAAATCTTG ATAATAAAAA CGGCTGGGTT GACGTTTGAG TACGTCTCCG ACACTTTCCA	3420
TCTAATCTCC TCCTTTTTCT AATCGAGCTA ATAGTTCTTG CTTCTTACGT TCTAGTTCCA	3480
GACGAGTTTC CTCGCTGGTT TCATTCTTAT ATTCAGGATT ACTCCATTTA GGAACATTGG	3540
TTTTTCTGG GGCAGTCTGA TTCTGTTTTT GTGTTTTTGC TTTCTGCCCT CGATCACGAA	3600
TTTCGTA AAC GGCCTCTTCT GCCGAATGAA TCTTTTGATA GGCATAGTCA TTGGCTACCT	3660
TCATGGCATA TTTCTCATTG ATATTGCGG AATCCACCTT ATTAAAGGTC AATAAGAGAA	3720
TAATATTGAT GACTTCGTCC AGTAAGCCCA AGCCAGCCAT CTGTTGCAAG AGTTCTCTTT	3780
CTGTTTGGGT AATGGTTCCC TTGCGTGTTT GCTTGATTTC TGCTAAGAAC TGCAGGGCAG	3840
TTTTACTTTT AGCTTCTTTG ATAATGGTCG CTTCCTTAAG ACTAAAGTCA GAGGAACTG	3900
GTTTTTGAGC AATTTTTTCA CGCATGCGTT TGGTTGAAAT AACCTGGGAA ACAGCTGTTG	3960
ACTTGGCCAA TTGATAGGTT TCAAACCAAG TCCATTTCCT CTCCTCGGCA ATAGCAAAGA	4020
GGTTTAAGAC ATCGGACTGC TCATCCGCAA AACGAAGTCC ATCTCGAGCC ATCAGCTGGC	4080
GAAATGTTC CAAGTCAAAA TCATTGGCCA CTTTCTTCTT GAGACCAAGG TCTTCTTGAC	4140
TGCCTAGTTC TGCCAATTCT GGAAAGACTT GATTGAGTGA GACAGGTATT TCTTCACCAT	4200
CAGCACTTTC AACTTTCAAA TCCTCCACAG CTACATCGCC AATCTTTTTT TCTAAGAGTC	4260
TGCGATAAAC AGGATGCCCC AAGAAGTCTT GACTAGATAG AGGAGCATGG AGGGCTAGCT	4320
GATAAACATC ACCCTTTTGA TAGAGGGTCA AGAGATTAAA AGCAGATAAG ATTTTCAATG	4380
ATTTTATCAG TCTATCCATC CCAAAGTTGA GATGGTTGAG AATGCTTGAA AAAAGATATT	4440
CCTTTCTACC ATTATCCCAA AAAGTGATTG TATAAGATA AAGGCTCAGT GCCTCCTGAC	4500
CGATAATCGG GAGGTAGCAC TGTACCAGAG ATGAGGTATC TTGCGACACC CGATTATTCT	4560
TTAGATAAGA AAAACGGTCA ATTGGCTTCA TTTATCTTTC CTTTTTCTTT TTAGAGGACT	4620
GGGTGATTG TTGGAGCAAG CTCTCTAACT CACTGACATC CTTAAACTA CGATAGACAC	4680
TAGCAAAACG TACATAGGTA ATCTCGTCCA ATTCAGCCAA CTCCTCCATG ACGAGTGAAC	4740
CAATGTCCTC ACTTTGAATT TCATTTTCAT TTCGACCACG GAGTTTCTGT TCGATACGAT	4800
TGACTACCAT GTTGATTTC TCACTTGACA CAGGACGTTT CTGGGCTGAG CGGATAATCC	4860
CATTAAAGAT TTTATCTCTG GAGAATTGTT CCCGTGTGCC ATCTTTTTTA ACAACCACTA	4920
AGGTTCTTTC TTCTACTCGT TCGTAGGTTG TAAACGGTG TTGGCATTCT TCGCACTCAC	4980
GTCTTCTACG AATGGTGTTT CCTTCTCTG CTTGGCGACT ATCGATAACA CTTGACTTGG	5040
TAGCCCCACA TTTTGGACAG GGTACC	5066

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## (2) INFORMATION FOR SEQ ID NO: 80:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9607 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 80:

CACCTGAAGT ATTTGAAACA GCTATGGAAC ACATCATGCC TGTACTTGAA GTACGTGCAC	60
GTCGTGTTGG TGGTTCTAAC TACCAAGTCC CAGTTGAAAGT TCGTCCAGAA CGTCGTACAA	120
CACCTGGACT TCGTTGGTTG GTAACAATCG CTCGCTCTTCG TGGTGAACAC ACAATGCAAG	180
ACCGTCTTGC AAAAGAAATC TTGGATGCTG CTAACAACAC TGGTGCAGCA GTTAAGAAAC	240
GTGAAGATAC TCACCGTATG GCTGAAGCTA ACCCTGCATT CGCACACTTC CGTTGGTAAG	300
ATAGGATGCG AAAGCGTTAA GAAAGTCCCA GAGAAAATAG GGAATCGAAG CAGGTTGCGG	360
TTGCAACCAA TGAGATTCAT CTTTTTCTCC AGACTTTTAG CTTGAGCTCA ACTAAATCAT	420
GATGCTAGGA ACGGTAAGGA TGCAAGGTAA AAATAGGAAA CTGACGCAGT ATTCGACGAA	480
TACAAGGAGT TTTATCTTTT TCACGCAGCA TCCCGTTCCA GCTCACATCG CCTAACTAAC	540
TTTAGCCCGG GTTCAAATTA GCTAAATCGA TTAGTATTAG CTATAACTCA GCTTACCATC	600
TCGTAAGTTG AAACCAACAA TAGCATGAAA ACATTGAGAA CCGGTAGGTC CTGCCTATCC	660
GTTTTTATTA AAATCGTGTT ATAATAGAAT AGAAATCAAA AATAAATAGG AGAAACAAAC	720
CTCATGGCAC GCGAATTTTC ACTTGAAAAA ACTCGTAATA TCGGTATCAT GGCTCACGTC	780
GATGCCCGTA AAACAACAAC TACTGAGCGT ATTCTTTACT ACACTGGTAA AATCCACAAA	840
ATCGGTGAAA CTCACGAAGG TCGGTCACAA ATGGACTGGA TGGAGCAAGA GCAAGAACGT	900
GGTATCACGA TCACATCTGC TGCGACGACA GCTCAATGGA ACAACCACCG CGTAAACATC	960
ATCGACACAC CAGGACACGT GGACTTCACA ATCGAAGTAC AACGTTCTCT TCGTGTATTG	1020
GATGGTGCGG TTACCGTTCT TGAATCACA TCAGGTGTTG AGCCTCAAAC TGAAACAGTT	1080
TGGCGTCAAG CAACTGAGTA CGGAGTTCCA CGTATCGTAT TTGCCAACA AATGGACAAA	1140
ATCGGTGCTG ACTTCCTTTA CTCTGTAAGC ACACTTCACG ATCGTCTTCA AGCAAATGCA	1200
CACCCAATCC AATTGCCAAT CGGTTCTGAA GATGACTTCC GTGGTATCAT TGACTTGATC	1260
AAGATGAAAG CTGAAATCTA TACTAACGAC CTTGGTACGG ATATCCTTGA AGAAGACATC	1320
CCAGCTGAAT ACCTTGACCA AGCTCAAGAA TACCGTGAAA AATTGATTGA AGCAGTTGCT	1380

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GAAACTGACG	AAGAATTGAT	GATGAAATAC	CTCGAAGGTG	AAGAAATCAC	TAACGAAGAA	1440
TTGAAAGCTG	GTATCCGTAA	AGCGACTATC	AACGTTGAAT	TCTTCCCAGT	ATTGTGTGGT	1500
TCAGCCTTCA	AAAACAAAGG	TGTTCAATTG	ATGCTTGATG	CGGTTATCGA	CTACCTTCCA	1560
AGCCCACTTG	ACATCCCAGC	AATCAAAGGT	ATTAACCCAG	ATACAGACGC	TGAAGAAATT	1620
CGTCCAGCAT	CTGACGAAGA	GCCATTGCA	GCTCTTGCC	TCAAGATCAT	GACTGACCCA	1680
TTCGTAGGTC	GTTTGACATT	CTTCCGTGTT	TACTCAGGTG	TTCTTCAATC	AGGTTCATAC	1740
GTATTGAATA	CTTCTAAAGG	TAAACGTGAA	CGTATCGGAC	GTATCCTTCA	AATGCACGCT	1800
AACAGCCGTC	AAGAAATCGA	CACTGTTTAC	TCAGGTGATA	TCGCTGCTGC	CGTTGGTTTG	1860
AAAGATACTA	CAACTGGTGA	CTCATTGACA	GATGAAAAAG	CTAAAATCAT	CCTTGAGTCA	1920
ATCAACGTTT	CAGAACCAGT	TATCCAATTG	ATGGTTGAGC	CAAAATCTAA	AGCTGACCAA	1980
GACAAGATGG	GTATCGCCCT	TCAAAAATTG	GCTGAAGAAG	ATCCAACATT	CCGCGTTGAA	2040
ACAAACGTTG	AAACTGGTGA	AACAGTTATC	TCAGGTATGG	GTGAACTTCA	CCTTGACGTC	2100
CTTGTTGATC	GTATGCGTCG	TCAGTTCAAA	GTTGAAGCGA	ACGTAGGTGC	TCCTCAAGTA	2160
TCTTACCGTG	AAACATTCCG	CGCTTCTACT	CAAGCACGTG	GATTCTTCAA	ACGTCAGTCT	2220
GGTGGTAAAG	GTCAATTCGG	TGATGTATGG	ATTGAATTTA	CTCCAAACGA	AGAAGGTAAA	2280
GGATTGGAAT	TCGAAAACGC	AATCGTCGGT	GGTGTGGTTC	CTCGTGAATT	TATCCCAGCG	2340
GTTGAAAAAG	GTTTGGTAGA	ATCTATGGCT	AACGGTGTTT	TTGCAGGTTA	CCCAATGGTT	2400
GACGTTAAAG	CTAAGCTTTA	TGATGGTTCA	TATCAGCATG	TCGACTCATC	TGAAACTGCC	2460
TTCAAGATTG	CGGCTTCACT	TTCCCTTAAA	GAAGCTGCTA	AATCAGCACA	ACCAGCTATC	2520
CTTGAACCAA	TGATGCTTGT	AACAATCACT	GTTCCAGAAG	AAAACCTTGG	TGATGTTATG	2580
GGTCACGTAA	CTGCTCCTCG	TGGACGTGTA	GATGGTATGG	AAGCACACGG	TAACAGCCAA	2640
ATCGTTCGTG	CTTACGTTCC	ACTTGCTGAA	ATGTTGCGTT	ACGCAACAGT	TCTTCGTTCT	2700
GCATCTCAAG	GACGTGGTAC	ATTCATGATG	GTATTTGACC	ACTACGAAGA	TGTACCTAAG	2760
TCAGTACAAG	AAGAAATTAT	TAAGAAAAAT	AAAGGTGAAG	ACTAATCCGT	CCTCACTCTA	2820
GAAGGAAGTC	ACTTAGTGCC	TTCTTTTGT	CTTTAGAAAA	TACCTCTAAA	TATGGTAAAA	2880
TAGTAGAAGA	ATAATGTGAG	GAAAAATGAAT	GTCAAATAGT	TTTGAAATTT	TGATGAATCA	2940
ATTGGGGATG	CCTGCTGAAA	TGAGACAGGC	TCCTGCTTTA	GCACAGGCCA	ATATTGAGCG	3000
AGTTGTGGTT	CATAAAATTA	GTAAGGTATG	GGAGTTTCA	TTCGTATTTT	CTAATATTTT	3060
ACCGATTGAA	ATCTTTTITAG	AATTAAAGAA	AGGTTTGAGC	GAAGAATTTT	CTAAGACAGG	3120
CAATAAAGCT	GTTTTTGAAA	TTAAGGCTCG	GTCTCAAGAA	TTTTCAAATC	AGCTCTTGCA	3180

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GTCCTACTAT AGGGAGGCTT TCTCTGAAGG TCCATGTGCT AGTCAAGGTT TTAAGTCCCT	3240
TTATCAAAAT TTGCAAGTTC GTGCTGAGGG TAATCAGCTA TTTATTGAAG GATCTGAAGC	3300
GATTGATAAG GAACATTTTA AGAAGAATCA TCTTCCTAAT TTAGCCAAAC AACTTGAAAA	3360
GTTTGGTTTT CCAACTTTTA ACTGTCAAGT CGAGAAGAAT GATGTCCTGA CCCAAGAGCA	3420
GGAAGAGGCC TTTCATGCTG AAAATGAGCA GATTGTTCAA GCTGCCAATG AGGAAGCGCT	3480
CCGTGCTATG GAACAACCTGG AGCAGATGGC ACCTCCTCCA GCGGAAGAGA AACCAGCCTT	3540
TGATTTTCAA GCGAAAAAAG CTGCAGCTAA ACCCAAGCTG GATAAGGCGG AGATTACTCC	3600
TATGATCGAA GTGACGACAG AGGAAAATCG TCTGGTATTT GAAGGGGTTG TTTTGTATGT	3660
GGAGCAAAAA GTGACTAGAA CAGGTCGTGT TTTAATCAAC TTTAAATGA CGGACTATAC	3720
TTCAAGTTTT TCTATGCAAA AGTGGGTAA AAACGAGGAA GAGGCCCAGA AGTTTGACCT	3780
CATCAAGAAG AATTCCTGGC TCCGAGTTCG AGGGAATGTG GAGATGAATA ACTTCACACG	3840
CGATTTGACT ATGAACGTAC AGGATCTGCA GGAAGTTGTT CACTATGAGC GGAAGGATTT	3900
GATGCCAGAA GGTGAGCGTC GGGTTGAGTT TCATGCTCAT ACTAACATGT CGACTATGGA	3960
TGCTTTGCCA GAGGTCGAAG AGATTGTTGC AACAGCTGCT AAGTGGGGAC ACAAGGCGGT	4020
TGCTATCAGC GACCATGGGA ATGTCCAGTC CTTTCCACAT GGCTATAAGG CGGCTAAGAA	4080
AGCGGGAATC CAGCTGATCT ATGGGATGGA AGCCAATATC GTGGAGGACC GTGTCCCTAT	4140
CGTCTATAAC GAAGTGGAGA TGGACTTGTC AGAAGCAACC TACGTGGTCT TTGACGTGGA	4200
AACGACGGGA CTTTCAGCTA TCTATAATGA CTTGATTACG GTTGCGGCTT CTAAGATGTA	4260
CAAGGGGAAT GTTATTGCTG AATTTGATGA ATTTATCAAT CCTGGGCATC CCTTGTACGC	4320
CTTTACTACA GAGTTAACTG GAATTACAGA TGATCATGTC AAAAATGCCA AACCCTAGA	4380
ACAAGTTTTG CAAGAATTCC AAGAATTTG CAAGGATACG GTCCTAGTTG CCCACAATGC	4440
TACCTTTGAC GTTGGCTTTA TGAATGCTAA TTATGAGCGG CATGATCTTC CAAAGATTAG	4500
TCAGCCAGTT ATTGATACGC TGGAGTTTGC TAGAAACCTC TATCCTGAGT ATAAACGCCA	4560
TGGTTTGGGG CCTTTGACCA AGCGTTTTGG TGTGGCCTTG GAACATCACC ACATGGCCAA	4620
CTACGATGCG GAAGCGACTG GTCGTCTGCT TTTCATCTTT ATCAAAGAGG TAGCAGAAAA	4680
ACATGGTGTG ACCGATTTAG CTAGACTCAA CATTGATCTA ATCAGTCCAG ATTCTTACAA	4740
AAAAGCTCGG ATCAAGCATG CGACCATCTA TGTCAAGAAT CAGGTAGGTC TAAAAAATAT	4800
CTTTAAGCTG GTTTCCTTGT CTAATACCAA GTATTTTGAA GGAGTGCCAC GGATTCGGAG	4860
AACGGTTCTA GATGCCCATC GAGAGGGCTT GATTTTAGGT TCAGCCTGTT CAGAGGTGA	4920

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AGTTTTTGAC	GTGGTCGTTT	CTCAAGGTGT	GGATGCGGCG	GTTGAGGTGG	CCAAGTATTA	4980
TGATTTTATC	GAGGTCATGC	CACCGGCTAT	CTATGCACCC	TTGATTGCCA	AAGAGCAGGT	5040
CAAGGATATG	GAGGAACTCC	AGACCATTTAT	CAAGAGTTTG	ATAGAGGTTG	GAGACCGCCT	5100
TGGCAAGCCT	GTTCTGGCTA	CGGGAAATGT	TCACTATATC	GAACCGGAAG	AAGAGATTTA	5160
TCGTGAAATT	ATCGTCCGTA	GTTTGGGACA	GGGTGCGATG	ATTAATCGAA	CTATCGGTCA	5220
TGGTGAACAT	GCCCAACCAG	CACCACTTCC	AAAGGCTCAT	TTTCGAACGA	CTAATGAGAT	5280
GTTGGATGAA	TTTGCCTTTT	TGGGAGAGGA	ACTGGCTCGT	AAACTGGTTA	TTGAAAACAC	5340
CAATGCCTTG	GCAGAAATAT	TTGAATCCGT	TGAAGTCGTT	AAGGGTGACT	TGTATACGCC	5400
TTTCATCGAC	AAGGCTGAAG	AAACAGTTGC	TGAGTTGACC	TATAAGAAAG	CTTTTGAGAT	5460
TTATGGAAAT	CCGCTGCCAG	ATATTGTTGA	TTTGCGGATT	GAAAAAGAAT	TAACATCCAT	5520
ACTGGGGAAT	GGATTTGCTG	TGATTTATCT	GGCATCGCAG	ATGCTGGTGC	AACGTTCTAA	5580
TGAACGGGGT	TATTTGGTTG	GTTCTCGTGG	GTCTGTCGGA	TCTAGTTTCG	TTGCGACCAT	5640
GATTGGGATT	ACGAGGTCA	ATCCTCTCTC	TCCTCACTAT	GTCTGTGGTC	AGTGTCAGTA	5700
CAGTGAGTTT	ATCACAGATG	GTTCTGACGG	TTCAGGATTT	GATATGCCCC	ATAAGGACTG	5760
TCCAAACTGT	GGTCACAAAC	TCAGTAAAAA	CGGACAGGAT	ATTCCGTTTG	AGACCTTCCT	5820
TGGTTTTGAT	GGGGATAAGG	TTCTTGATAT	TGACTTGAAC	TTCTCGGGAG	AAGATCAGCC	5880
TAGCGCCAC	TTGGATGTGC	GTGATATCTT	TGGTGAAGAA	TATGCCTTCC	GTGCGGGAAC	5940
GGTTGGTACG	GTAGCTGCCA	AGACTGCCTA	TGGATTTGTC	AAAGGTTACG	AGCGAGATTA	6000
TGGCAAGTTT	TATCGTGATG	CAGAAGTAGA	ACGCCTCGCT	CAAGGAGCGG	CGGGTGTCAA	6060
GCGGACAACA	GGCCAACACC	CGGGGGGAAT	CGTTGTTATT	CCGAACTACA	TGGATGTCTA	6120
CGATTTTACG	CCTGTCCAGT	ATCCAGCAGA	TGATGTCACG	GCTGAATGGC	AGACCACTCA	6180
CTTTAACTTC	CACGATATCG	ATGAGAACGT	CCTCAAATC	GATGTACTGG	GACATGATGA	6240
TCCGACTATG	ATTCGAAAAC	TTCAGGATTT	GTCTGGTATT	GACCCTAATA	AAATTCCTAT	6300
GGATGACGAA	GGCGTGATGG	CACCTTTTTT	TGGGACTGAT	GTGCTAGGGG	TAACACCTGA	6360
ACAAATTGGA	ACGCCTACGG	GTATGTTGGG	GATTCCAGAG	TTTGGAAACA	ATTCGTACG	6420
TGGAATGGTA	GACGAAACCC	ATCCGACAAC	CTTTGCGGAA	TTGCTTCAGC	TGTCTGGTCT	6480
GTCCACCGGT	ACTGATGTTT	GGTTGGGGAA	TGCTCAGGAT	CTGATTAAGC	AAGGAATAGC	6540
GGACCTATCG	ACTGTTATCG	GTTCTCGGGA	CGACATCATG	GTTTACCTCA	TGCATGCGGG	6600
TCTGGAACCT	AAGATGGCCT	TTACCATTAT	GGAACGGGTA	CGTAAGGGTT	TGTGGCTAAA	6660
GATTTTCAGAA	GAGGAGAGAA	ATGGCTATAT	CGAAGCAATG	AAGGCTAATA	AGGTGCCAGA	6720

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GTGGTATATC GAATCCTGTG GGAAAATTAA GTACATGTTC CCTAAGGCCC ATGCGGCAGC	6780
CTACGTTATG ATGGCCTTGC GTGTAGCTTA CTTCAAGGTT CACCATCCTA TTTATTACTA	6840
CTGTGCTTAC TTCTCCATTC GTGCTAAGGC TTTTGATATC AAGACCATGG GTGCGGGCTT	6900
GGAGGTCATC AAGCGCAGAA TGGGAAGAAAT CTCTGAAAAA CGGAAGAACA ATGAAGCCTC	6960
TAATGTGGAA ATCGATCTCT ATACAACTCT TGAGATTGTC AATGAGATGT GGAACGAGG	7020
TTTCAAGTTT GGTAATTAG ATCTCTACTG TAGTCAGGCG ACAGAGTTCC TCATCGACGG	7080
GGATACCTT ATCCACCAT TTGTAGCAAT GGATGGTCTG GGAGAGAACG TTGCCAAGCA	7140
ACTGGTGCGG GCGCGTGAAG AGGGAGAATT CCTCTCTAAA ACAGAACTAC GCAAGCGTGG	7200
TGGACTCTCA TCAACCTTGG TTGAAAAGAT GGATGAGATG GGTATTCTTG GAAATATGCC	7260
AGAGGATAAC CAGTTGAGTT TGTGTGATGA GTTGTTTTAA AAAATTGCTT AATAATCTAT	7320
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CTATGGAAAG AGGGTGAGAG TATGTCAAAG ATGAGTATAA GCATCCGTCT GGATAGTGAG	7440
GTAAAGGAGC AGGCCCAACA GGTGTTTAGT AATCTGGGAA TGGATATGAC AACAGCTATT	7500
AATATTTTCC TTCGTCAGGC AATTCAATAT CAGGGATTAC CTTTGTATGT TAGACTAGAC	7560
GAAAATCGGA AGTTGCTCCA AGCGTTAAGC GATTTAGACC AAAATCGTAA TATGAGCCAG	7620
TCTTTTGAAT CAGTCTCAGA TTTGATGGAG GACTTACGTG CTTAAGATTC GTTATCATAA	7680
ACAGTTTAAA AAAGATTTTA AGTTGGCTAT GAAGCGTGGT TTGAAGGCAG AATTATTAGA	7740
AGAAGTTTGT AATTTTCTGG TTCAAGAAAA AGAACATCCT GCCAGAAATC GTGATCATTC	7800
ATGACGGCA TCCAAGCATT TTCAAGGAGT TCGTAATGC CATACCCAGC CAGATTGGCT	7860
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GATAAGCCGG CTAAGAAGGT ATTTGAATAT CAATTAGAAC TTGCTGATCG TACAATTCTT	8040
CTATCGACAG CACTCTTGTC AGGTGCTATT GCTTTAGCAG GAATCTTTTC TGCTTTGAAA	8100
GAAAAATAAA AATAGAAAAG AGAAAACAGA ATGGTTTTAC CAAATTTTAA AGAAAATCTA	8160
GAAAAATATG CGAAATTGTT GGTGCGAAC GGAATTAACG TGCAACCTGG TCACACTTTG	8220
GCTCTCTCTA TTGATGTGGA GCAACGTGAA TTGGCACATC TAATCGTGAA AGAAGCTTAT	8280
GCCTTGGGTG CGCATGAGGT CATCGTTCAG TGGACAGATG ATGTGATTAA CCGTGAGAAA	8340
TTCTCCATG CCCCAGTGA GCGTTTGGAC AATGTGCCAG AATACAAGAT TGCTGAGATG	8400
AACTATCTCT TGGAGAATAA GGCTAGCCGT CTTGGAGTTC GTTCATCTGA TCCAGGTGCC	8460

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TTGAACGGAG TGGACGCTGA CAAGCTTTCA GCTTCTGCTA AAGCTATGGG ACTTGCCATG	8520
AAGCCTATGC GTATCGCAAC TCAATCTAAC AAGGTTAGCT GGACTGTAGC AGCTGCAGCA	8580
GGACTTGAGT GGGCTAAGAA AGTCTTCCCA AATGCTGCGA GCGACGAAGA AGCAGTTGAT	8640
TTCCTTTGGG ACCAAATTTT CAAAACCTGC CGTGTCTACG AAGCAGATCC TGTTAAGGCT	8700
TGGGAGGAAC ATGCAGCCAT TCTCAAGAGC AAGGCCGATA TGCTTAATAA GGAGCAATTT	8760
TCAGCCCTTC ACTACACAGC GCCAGGAACA GATTTAACAC TTGGTTTGCC AAAGAACCAC	8820
GTTTGGGAAT CAGCTGGTGC TGTCAATGCA CAGGGCGAAG AATTCTTGCC AAATATGCCA	8880
ACAGAAGAGG TCTTCACAGC GCCTGACTTC CGTCGTGCAG ATGGTTATGT CACTTCTACA	8940
AAACCGCTTA GCTACAACGG AAATATCATT GAAGGCATTA AGGTGACCTT TAAGGATGGA	9000
CAAATCGTAG ATATCACTGC TGAGAAGGGT GATCAGGTTA TGAAAGACCT TGTCTTTGAA	9060
AATGCGGGTG CCGGTGCCTT GGGTGAATGT GCCTTGGTAC CAGATCCAAG TCCAATTTCT	9120
CAGTCAGGCA TTACCTTCTT TAACACCCTT TTCGATGAAA ATGCCCTCAA CCACTTGGCT	9180
ATCGGTGCAG CCTATGCGAC TAGCGTTGTT GATGGAGCGG AGATGAGCGA AGAGGAGCTT	9240
GAAGCTGCAG GGCTTAACCG TTCAGATGTT CACGTAGACT TTATGATTGG TTCTAACCAA	9300
ATGGATATCG ATGGTATTCG TGAGGATGGA ACGCGGGTAC CTCTTTTCCG TAATGGGAAT	9360
TGGGCAAATT AAGGAGATAA TATGTTAGGA AGTATGTTCC TTGGTCTCCT AGTGGGATTT	9420
TTAGCAGGTG CTATGACCAA TCGTGGAGAG CGAATGGGAT GTTTTGGAAT AATGTTTCTC	9480
GGTTGGATCG GAGCCTTTCT AGGTCACCTG CTCTTTGGAA CTTGGGGGCC AGTTTATCA	9540
GGAACAGCTA TTATCCCAGC GATTTTAGGA GCCATGATTG TTTTAGCTAT TTTTGGAGA	9600
CGAGGAA	9607

## (2) INFORMATION FOR SEQ ID NO: 81:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 14231 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 81:

CTACAAGATA ATTCCAGCTA TAACATCCGC TATAATAGTA AGAGCGAGCT CTATGATAAG	60
GCTCATTAGT TTCACCTCCT CTCACGAACC CATAGGAACG TAATCGGTAA CCGATGACAA	120
AAATAGTATA CCACAATACA TTTAGATCAT CAAGGTCAC TAAATCTTGA AATATCAGAT	180
CTAAGAGAAA AATCTTTAAA ATCAGAAAAA CGCATAATAT CAGGTGTGCA AAAACTTGAT	240



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ACTATGCGTT TTATTGTGGG AAGGTTTACT CCATTTTCTC CTGAAATTGA GTTTTGTGCC	300
AGCCTCTGTT TTTAGGGTTG CTAAGAAAAT AATGTCATGT GGTGAATATT TGTAAATCAG	360
TCAGCAGACA GAACGATACT CTTCGAAAAT CTCTTCACAT CATGTCAGCT TCGTCTTTCC	420
GTATATATGT GACTGACTTC ATCAGTTCTA TCTACAACCT CAAAACAGTG TTTGAGCTG	480
ACTTGATCAA TTTTCAAATC TGTACTTTGA GCAAGCTGAG ACTAGCTTCC TATTTGATTT	540
TCATTGAATA TCAGAAACCC ATTCTCCATC AAATAATTG ACTGCGTCTA ATAATTTTTC	600
ATCTGGCAGC GTGTCTGAAA TAAAGGTTGT GTATTTGGAG AGGGGATTAA TTTTAAAAA	660
TCCAGTCTTG TAAAATTTAG AACTATCAAT CAGTAAGATG GTTTCATGGG CTTTGTCAAT	720
AATATTCTTT TTTGAAATAG CTTGGCTGAG AGAAGCTTCA TAAACATATT GGTATCAAT	780
ACCTCTTGCT GAACAAAATG CTAAATCGAT ATTAAAATGA TCTAATAAAG AATTTTCCTT	840
ATCATAGTTG ACCACGGAAC AGGATTGATG TTTGACCTCG CCAGATGTGA TAAACATTTT	900
GGAGCTATCT TTAACAGTTT CAGATAGGGT TTGTGCAGTA TGTAACCAT TTGTAAAAAT	960
AATCAAAATTA TCAAGTTCAG AAAGATAGGG ACAGAGTTCC TAGACAGTAG TACTAGAATC	1020
TAGATAGATA CACATACCAG ACCGAATAAA GTCTTTAGCG AGACTAGCGA TTAGTCTTTT	1080
TTGCCTAGTA CTTTCTCCTT CACGTATTG ATGAGAAAGT TCAATTGTGT TCATAGAGGA	1140
CAGGGTCACG TATCCGTGCT TTCTTTTGAT AAGACCTTGA TTTTCTAAGA AAATTAAATC	1200
ACGACGTAAG GTAAGTTGTC TGGAGAAAGT GATTTCTGCC AGCTCTTTTA CGGCAATTCT	1260
TTTTTCTTTT TTGATAATTT CAATCAATTC AAGTACACGT TCATCTTTTA TCATAAGCTC	1320
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ATGAATATTG GGTTAACATT TGAACATTAT TCAAGTAAGC GTTCACATAT TGAATAAATA	1440
AAACGTGGGG ATTATAATAA AGTTAATCma GGACGAAGAG AGAAGAAAAA TGGAAGCGGT	1500
TTTAGCAATA GATTTAGGTG CGACTTCTGG AAGAGCAATC GTTGGTTACC TTTCTGAAAA	1560
TAAACTAGTA ATGGAAGAAA TAAATCGCTT TTCTAATCTA CCTATTAGAG TAAAAGGGCA	1620
TTTATCTTGG GATATTGACT TTCTACTAGC TAAAATTCTT GAAAGTATCC GCTTGGCTAA	1680
TACTAGTTAC AAGATTTTAT CTATCGGTAT TGACACATGG GGAGTTGATT TTGGACTGAT	1740
TGATAATGAA GGTAAGCTGT TATTACAACC TGTTCAATAT CGTGATGAAA GAACAAAGGG	1800
AGTGTTAAAG GAAATATCTG AAATGACTGA ATTAGAAAAA CTGTATTTCAG AGACAGGAAA	1860
TCAGATTATG GAGATAAATA CCTTGTTCCTA ACTCTTTAAG GCACGTCAAG AATCTCCTGA	1920
CTCTTTCTAT AAGACCAATA AGATTCTTTT AATGCCAGAT TTGTTTAATT ATCTCTTGAC	1980

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AGGTAAGTTT GCTACAGAAA AAAGCATTGC TTCAACAACCT CAATTATTTG ATCCTAGGAG	2040
TCAAAATTGG AATCAGAATA TCTTAAAACT ATTTGAATTG GATTCACTTT TACTTCCTGA	2100
AATTGTTTCA GAGGGAAATG TTCTTGAAG GATAAAAGAG GAGTATGGTT TAGGCGATAT	2160
TCCTGTGTG AATGTTTGTA GTCATGATAC AGCAAGCGCG ATTGTCTCAG TACCTAAGAC	2220
AGAAGGTAGT TTATTTATTT CATCAGGTAC TTGGTCTTTG GTTGGAGTGG AACTTACTTC	2280
ACCGATTCTT ACTACCGAAT CCTTCAGTTA TGGATTTACA AATGAAGTCG GTAAAGATGG	2340
AGTGATTACA TTTCTGAAGA ATTGTACAGG GTTGTGGATC ATAGAGGAAC TAAGACGTTT	2400
ATTTGAACGA AGAGGGAAAG CCTATTCTTT TGATGATATT AGGACAATGG TGGAGAAAGA	2460
AAAAGAAAAT CTTCCTCTGA TTGATACTGA ATCAACTGAA TTTGCAACAG AATCTGATAT	2520
GCACAAGACT TTGACAGAAT ATCTAGCTTA TCATCATGAA ACTAGAGAGT GGACAGATGG	2580
ACAACTATTT AAGATTGTTT ATGAAAGCCT AGCTGAAACG TATAGGAAAG CGATAGAGTT	2640
ACTAGAAGAA CTAACCTATA AGGTTTATAA GAGGATATAT GTGATTGGAG GAGGTGCTAG	2700
AGCCAGTTAC TTAAACCAA TGATTGCTGA TAGAACTGGT AAAGAGGTTT TTACAGGTTT	2760
GACTGAGGCT ACAGCTGTGG GGAATATTGT TGTGCAGCTC ATAGCTATGG GACAATTAAA	2820
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CCAAAAGAAT TAAAAGATT GAGAGTTTGT AAATTTGCCT CCCTCCCCCT TCTTAGCTTT	2940
TGTGCAGGAA GGGGGGATAA TTGGTGAATT GAAAAATATT TAGTGTTTTG ATATGAGGAG	3000
GACAAGGATG TCAGATGTAA AACAAGAATT AATTAAATAT GGTAAGAAGC TAGTAGAAAC	3060
AGATTTGACG AAAGGAACAG GTGGGAATCT CAGCGTTTTC GATCGTGAAA AACAATTGAT	3120
GGCAATTACC CCGTCGGGTA TTGATTTCTT TGAATCAAA GAATCCGATA TTGTAGTGAT	3180
GGATATTAAT GGAAATGTTG TAGAGGGAGA ACGCTTGCCA TCTAGCGAAT GGTATATGCA	3240
TTTGATTCAA TATCAAACTC GTGATGATAT CGATGCAATT ATCCATGCTC ATACAACTTA	3300
TGCAACAGTA TTAGCTTGTC TCAGAGAACC ACTTCCAGCG AGTCATTATA TGATTGCAGT	3360
GGCAGGGAAA GATGTTGCGG TAGCTGAGTA TGCAACATAT GGCACGAAAG AATTGGCTGT	3420
GAATGCAGCT AAAGCAATGG AAGGTCGTAG AGCAGTTTTA CTAGCGAATC ATGGAATTTT	3480
AGCAGGTGCA CAAAATTTAT TGAATGCATT TAATATTGTT GAAGAAGTTG AATATTGTGC	3540
AAAAATTTAT TGTTTAGCTA AGAATTTTGG AGAGCCAGTA GTTCTTCCTG ATGAGGAGAT	3600
GGAATTGATG GCAGAAAAAT TTAACATA CGGTCAGAGA AAATAGGGAG GATATTTAATC	3660
TTAAACATA TACCGAAAAA TATTTCTCCA GATTTATTGA AGACTTTAAT GGAAATGGGA	3720
CATGGAGATG AAATAGTATT AGCTGACGCG AATTATCCTT CTGCCTCATG TGCAATAAG	3780

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CTAATTCGTT GTGATGGTGT AAATATTCCA GAATTATTAG ATTCCATTCT GTATTTAATG	3840
CCATTAGATA GTTACGTCGA TAGTTCAATT CAGTTTATGA ACGTTGTTTC GGGTGATGAT	3900
ATTCCTAAGA TATGGGGTAC CTATAGACAG ATGATTGAAG GTCATGGTAC AGATCTTAAA	3960
ACGATTACTT ATCTTAGAAG AGAAGACTTT TATGAACGTA <u>GTAAGAAAGC</u> TTATGCTATT	4020
GTTGCTACAG GAGAAACTTC ACTTTATGCT AATATTATCC TTAAGAAAGG AGTAGTTGTT	4080
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AGCTCTCATG ACCGCAGAAA TGTTTGTTGG TGAGACAACA AATGATAGAG TTAGGACATT	4200
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AATGTTCAC AATGCTCAAA ATAGTTTGTT TAATGTTAAA CAACAACTTA ACGTAGAGGA	4500
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ACTATTTTCTG GTGCGATTAT TGGTACTGCA TTTGGTATTT TATCTGGTCA AGGAGAAACT	5280
GCTGGTATCG CTATAGCAGT TCCAATTGCA GTTGCTACCC AACAGTTGGA TGTCTTGCA	5340
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TCAAAGATCG GTTTTTATCA TTATTCAAGT TTGGTTTTAA TCACGTTATT TAAAAATTGA	5460
CCAAATTTCC TAGCTATTAT GCTTGGAGGG GAATATGTGG CAGACTTGTT TGCTAAGGTT	5520

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CCACCAATCG TTATGCAGGG ACTTAACTCT GCAGGTGCTT TACTACCTTC AATTGGTTTT	5580
GGTATGCTTT TAAATATGAT GCTCAAGAAA AATATGTGGG TATTCTTGTT GATTGGATTC	5640
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GCATACTTCT ACGATATGAT TGGAAGCAAA CCACAAGAAA CAACTTCAAG TAGTGATGTT	5760
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ATGTCGGCCT CTGCTGGAGG TAGAAAAGGT GTTCAGTTTA AAGTAGTATG TCATTCTAAG	7260
GTTACGGATG GTGAAGTAAG TGTATTGGGA GAGACAATAG TTATTCGGAA TGCTACAGAG	7320

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GTATTTCTTT ATCTCAAATC AATGACGGAT TATTGGGGAA ATATAGATAT TTCTTCTCTT	7380
CAGGGAGAAT TTAGTAGTAT TGATTACTTT ACAGAAAAAG ATGAACATGT AAAAAAATAT	7440
CAGGAGCAAT TTAATAGAGT TGATTTTAAA CTAGACTATA GTAAAGGTTG TCTTAGCATT	7500
CCAACGAATC TACTTCTTGA AAACACTAAA AAGTATAGTA ACTACTTGAC TAACTTGTTA	7560
TTTCATTATG GAAGATATCT GTTAATATCG TCTAGTCAAC CGAATGGTTT ACCTGCCAAT	7620
<hr/>	
CTTCAAGGAA TATGGTGTGA TGAATTAAAT CCAATTGGG GTTCTAAATA TACGATTAAT	7680
ATTAATACTC AAATGAATTA TTGGATGGTA GGTCCATGTG ATTTACCAGA AGTAGAATAT	7740
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AATAATGCGA CTCTTGCGAA TTTATTTCTT GACCATCCAC CATTTCAAAT TGATGGTAAT	8640
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CTAATCCAG CTTTACCTTC TGCTTGGTCA GAAGGAGAAG TGAAAGGTTT CAGAGTAAGA	8760
GGAGGATATA AGGTATCGTT TGCTTGGAAG AATGGGGATA TAACATTCCT AAAATTGGAA	8820
GGAGGAAACA AAGATCAAAA AGTAAGAGTA AGAATATATG GCAAAAATAC TGATGTACAA	8880
AATATTGAAT TGGTATTTAA TTCAGAAAAA ATTATTGAGT TAAATTTTAA GGTATAAGTC	8940
ATGAATAAAG AAAAAATAAA AAGAAAATTA ATCACAATAT TGTTTGTATG TATTGGGATG	9000
TTATGTTTTG GATTGTTAGC AGGAGTTAAG GCTGATAATC GTGTTCAAAT GAGAACCACG	9060

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ATTAATAATG AATCGCCATT GTTGCTTTCT CCGTTGTATG GCAATGATAA TGGTAACGGA	9120
TTATGGTGGG GGAACACATT GAAGGGAGCA TGGGAAGCTA TTCCTGAAGA TGTAAGCCCA	9180
TATGCAGCGA TTGAACCTCA TCCTGCAAAA GTCTGTAAAC CAACAAGTTG TATTCCACGA	9240
GATACGAAAG AATTGAGAGA ATGGTATGTC AAGATGTTGG AGGAAGCTCA AAGTCTAAAC	9300
ATTCCAGTTT TCTTGCTTAT TATGTCGGCT GGAGAGCGTA ATACAGTTCC TCCAGAGTGG	9360
TTAGATGAAC AATTCCAAAA GTATAGTGTG TTAAGAGGTG TTTTAAATAT TGAGAATTAT	9420
TGGATTTACA ATAACCAGTT AGCTCCGCAT AGTGCTAAAT ATTTGGAAGT TTGTGCCAAA	9480
TATGGAGCGC ATTTTATCTG GCATGATCAT GAAAAATGGT TCTGGGAAAC TATTATGAAT	9540
GATCCGACAT TCTTTGAAGC GAGTCAAAAA TATCATAAAA ATTTGGTGTT GGCAACTAAA	9600
AATACGCCAA TAAGAGATGA TCGGGGTACA GATTCTATCG TTAGTGGATT TTGGTTGAGT	9660
GGCTTATGTG ATAACGGGG CTCATCAACA GATACATGGA AATGGTGGGA AAAACATTAT	9720
ACAAACACAT TTGAAACTGG AAGAGCTAGG GATATGAGAT CCTATGCATC GGAACCAGAA	9780
TCAATGATTG CTATGGAAAT GATGAATGTA TATACTGGGG GAGGCACAGT TTATAATTTC	9840
GAATGTGCCC CGTATACATT TATGACAAAT GATGTACCAA CTCCAGCATT TACTAAAGGT	9900
ATTATTCCTT TCTTTAGACA TGCTATACAA AATCCAGCTC CAAGTAAGGA AGAAGTTGTA	9960
AATAGAACAA AAGCTGTATT TTGGAATGGA GAAGGTAGGA TTAGTTTCAAT AAACGGATTT	10020
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ATTCTTCCTG TAATACATGA GAAAATTGAT AAGGAAAAGA TTTCATCTAT ATTCCCTAAT	10140
GCAAAAATTT TGAATAAAAA TAGTGAGGAA TTGTCTAGTA AAGTCAACTA TTTAAACTCG	10200
CTTTATCCAA AACTTTATGA AGGAGATGGG TATGCTCAGC GTGTAGGTAA TTCCTGGTAT	10260
ATTTATAATA GTAATGCTAA TATCAATAAA AATCAGCAAG TAATGTTGCC TATGTATACT	10320
AATAATACAA AGTCGTTATC GTTAGATTGG ACGCCACATA CTTACGCTGT TGTAAAGAA	10380
AATCCAAATA ATTTACATAT TTTATTGAAT AATTACAGGA CAGATAAGAC AGCTATGTGG	10440
GCATTATCAG GAAATTTTGA TGCATCAAAA AGTTGGAAGA AAGAAGAATT AGAGTTAGCG	10500
AACTGGATAA GCAAAAATTA TTCCATCAAT CCTGTAGATA ATGACTTTAG GACAACAACA	10560
CTTACATTAA AAGGGCATACT TGGTCATAAA CCTCAGATAA ATATAAGTGG CGATAAAAAAT	10620
CATTATACTT ATACAGAAAA TTGGGATGAG AATACCCATG TTTATACCAT TACGGTTAAT	10680
CATAATGGAA TGGTAGAGAT GTCTATAAAT ACTGAGGGGA CAGGTCCAGT CTCTTTCCCA	10740
ACACCAGATA AATTTAATGA TGGTAATTTG AATATAGCAT ATGCAAAACC AACAACACAA	10800
ACTTCTGTAG ATTACAATGG AGACCCCTAAT AGAGCTGTGG ATGGTAACAG AAATGGTAAT	10860

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TTTAACTCTG GTTCGGTAAC ACACACTAGG GCAGATAATC CCTCTTGGTG GGAAGTCGAT	10920
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AGGTATATTA AAGTTAAATT ACTAACGAGT GGAGTGCCTT TGAGTTTAGC AGAAGTAGAG	11160
GTTCCTTAGAG AATCAGATGG TAAGCAATCT GAAGAGGATA TAGATAAAAT AACAGAAGAT	11220
AAAGTAGTCT CTACAAATAA GGTAGCTACT CAAAGTTCAA CCAATTATGA GGGTGTAGCT	11280
GCTTTAGCAG TTGATGGTAA TAAAGATGGA GATTACGGAC ATCATTCCGT GACTCATACT	11340
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CATACCAAAG AAGATTCTCC TTCATGGTGG GAGATAGATT TAGCACAAAC CGAAGAATTA	11820
GAAAAGTTAA TTATTTATAA TAGAACAGAT GCTGAAATTC AGAGATTATC AAATTTTGAT	11880
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AAAATCAAAT GTTTGCGCAA CAATTACAGT TACACCATGC TGGTGTTATG GTAGTGAAAC	12420
TATGGATATG TCTCCAGATA TTCCTCATGC TATTTGGGGA TTTAATGGGA CAGAACCCCC	12480
AGGAGCTGTC TATCTTGAG CTGTACTAGC TTCACATGCT CAAAAGGGA TTCCAGCCTT	12540
TGGGATTTAT GGAAGAGATG TTCAGGAAGC TAGTGACACA GATATCCAG AAGATGTCAA	12600

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AGAAAACTT TTACGCTATG CGCGTGCAGC TCTTGCAACT GGCTTGATGA GAGACACTGC	12660
TTACCTATCA ATGGGTAGTG TTTCGATGGG GATTGGTGGT TCTATTGTAA ATCCGGATT	12720
CTTCCAAGAA TACTTAGGAA TGCGAAATGA ATCGGTAGAT ATGACGGAGT TCACGCGCCG	12780
TATGGACCGT GGTATTACG ACCCTGAAGA GTTCGAACGT GCGCTCAAAT GGGTGAAAGA	12840
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TAACCCAAGA CTTGCTGAAC TTGGTTTGA GGAAGAAGCG GTTGGTCACC ATGCTTTAGT	13020
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AACTTTCCTC AATACTCAGT TTGACTGGAA TGGTATTCGA AAACCATTTG TATTTGCGAC	13140
AGAGAATGAT TCACTAAATG GTGTGTCTAT GCTCTTTAAT TATCTATTAA CAAATACTCC	13200
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ACATACTTTA GAGGTCGTG CTGCAGCTGG CTTCTTACAT CTAATCAACT CTGGTCTTG	13320
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AGGATGGCCA ACTACTTGGT TTGCTCCACG TTTGACAGGA AAAGGTGCTT TCAAGTCTGT	13680
CTATGACGTC ATGAATAATT GGGGAGCTAA TCACGGAGCC ATAACATATG GACACATTGG	13740
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ATTGAAAACG AATACAAAAA GTAATATAAT GATGTTAAAT AGATAGCGCG GAGGCGCAGG	14040
AGGAAAATTA TATGGCTATA TTTTATGTTT CGGCAGTCAA CCTTATTGGA AAAGGTGTTG	14100
TAAATGAAGT GGGTCCTTAT ATCAAGGAAC TTGGCTATAA AAAGGCACTT TTGGTGACAG	14160
ATAAGTACAT CGAAGGCAGT GATATTTTAC CTAAGACTTT AAAACCACTG GATACAGAAG	14220
GAATCGAATA T	14231

(2) INFORMATION FOR SEQ ID NO: 82:

(i) SEQUENCE CHARACTERISTICS:



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(A) LENGTH: 16995 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 82:

AGTTCTCTTA ACTTTTTTAG GATGGCATT CCGCTCTCA GGTACTCATT TTCTGCTgAA	60
GACGTTCTAA TTCTGTCCTC TCTTCAGGTC TCGTTTTTGG CTTACGTCCC ATTTTAGGTA	120
CTCTCCCTCT TGTTTTCTCA ACAATAGTAT ACCCGTTTTT CCTGTATTGT GCTAGCCAGT	180
TAAGAAGTAT CGTACGACTT GGGAGACCGT ATTCAAGAGA AACTCTATCT TTAGTCCAGC	240
CTTCATGTCA GACTTTATTA CTCATTTCTT GTTTTAAATC AGGAGAATAG TAACGATTTT	300
TTCTTTTTTT GACGAACTCT ATTCCGTAAC GATCAATCAA TTTAATCATG TACCTAATAT	360
TAGAATTGCT TATCCCAAAT TTATTGAAA GCTTCTCTAA GCTATATCCT TGTTTTCTAA	420
GTTCATAGAT CTGAACTTTA TCATCATAAG TTAGTTTCAT AATAAAAACA CCCCCAAAGT	480
TAGATTTTTT CTGTCTAACT TTTGGGGTGT AGTTCATGTA CACCTGATAT GATGCGTTTT	540
ATAATTTTTA AGCCTTTTTG CCCAGCCTCG TCAAAAGTAA TGTTTTGACA CAAAATCTGT	600
GACAAAACCT TAGTTTTAAA GGTTTTTAAC TTTGTATATA CTAGTTTTAA GAAAAGGAGG	660
ATGATCTAAT GGAAGAAAAA GTATCATTGA AAGTCAGGGT TCAAAAACCTA GGGACATCGC	720
TTTCAAATAT GGTATGCCCC AATATTGGAG CATTTATTGC TTGGGGAGTA TTGACTGCCC	780
TCTTTATCGC TGATGGCTAT CTGCCAAATG AACAGTTAGC TACTGTTGTT GGTCTATGT	840
TAACGTATTT ATTGCCAATC CTGATTGGTT ACACAGGTGG ATATATGATC CATGGCCAAC	900
GTGGTGCCGT TGTAGGAGCT ATTGCTACTG TTGGTGCAAT CACAGGTTCT AGTGTTCCTA	960
TGTTTATCGG AGCTATGGTA ATGGGCCCCAC TGGGAGGATG GACTATCAAG AAATTTGATG	1020
AGAACTTCCA GGAAAAAATT CGTCCCGGAT TTGAAATGTT AGTTAATAAC TTCTCAGCTG	1080
GTCTCGTTGG TTTTGCATTA TTGCTTTTGG CTTTCTACGC AATCGGTCCA GTCGTATCGA	1140
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TGGCTAATAT TATCATCGAA CCGGCTAAAG TCCTTTTCCT CAATAATGCC CTCAATCATG	1260
GCATTTTAC TCCTCTGGGA GTAGAACAGG TAGCTCAAGC TGGTAAGTCA ATTCTCTTCC	1320
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CACCAGGTTT TATTATTGCG ATTATAGCTA CGGCGCCAAA AGGTGTTTGG CCCCATCTAA	1620
ATGTTCTTTT AGGTGTTTTA GTGGCAGCAG TTGTTTCTTT CCTTGTAGCA GCCCTTATTC	1680
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CTAAGGCTCA GTCTAAAGGT CAGTTAGTAT CAACTTCTGT TGATGCAGTT GTTTCGACAG	1800
ACTCAGTGGA AAAAATCATT TTCGCCTGCG ATGCTGGTAT GGAAGCTCT GCTATGGGAG	1860
CTAGATTCT TCGAGATAAG GTTAAAAAAG CAGGTCTAGA GATTCCAGTA TCTAATCAGG	1920
CAATCTCAA TTTGCTTGAT ACACCAAAAA CATTAATTGT TACTCAGGAA GAACTGACAC	1980
CAAGAGCTAA AGACAAGAGT CCAAGTGCTA TTCATGTTTC TGTGATAAT TTCTTAGCGT	2040
CCTCTCGTTA TGATGAAATT GTAGCTTCAT TAACAGGAGC TTCTCCAATA GCAGAAATTG	2100
AAGGAGATAT ACCAACTTCA GCACCAGTAG ATAGTCAGGA AAGTGACCTT AACCATATTG	2160
ATGCTGTAGT AGTTGCTTAT GGTAAAGCAC AGGGAAGTGC AACTATGGGC TGTGAAACGA	2220
TTCCGGCTAT TTTAGAAAC AAGAATATTC GTATTCCAGT TTCTACTGCC AAAATTTTCT	2280
AAATAGGTGA ATTTAATTCT AAAAACATAA TGATTGTAAC AACTATTTCT TTACAGGCAG	2340
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AATGCTATTA ACCAAACGAG AAGAACAATT ATTGAAGGCT TTCCTACATG TAGGGAAGCT	2520
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TCGGATTCTT GGTGATTCAG TTGGTAAGAG AAGATTTTTG GCTATTTTAC TGACAAACTG	2940
TATCTCAGTA GCAGATTTTT CAACCGGTAA TTTTGGGAGC TTTGATATTT TAGAAGCAGA	3000
TAGAACTGGG CTGGCCAGTC AGATTGTAA TAAGCAACTG TCAGGTTTTT CAGATATGGA	3060
TGCTAGGATG AAGATGTTTT TTGCGATCTT GTTATCTCTT ATAGGTCAGG AGCAAAACAT	3120
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TTACTCTAAG CAGACTGCAC AATTTTATAG TATTTCAGGAA ATTATCTATT TTGCGAGCAT	3240
CTTGATGAA TTAATCATTA AACGTCAGGA CAATCCGCTC TTTACGGAGA AATTGATGG	3300

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TGAATTTTTC TACAATATTT CAAATCTGAT TGATACGGTT TCCATGTATA CCAAGATTGA	3360
CTTTTTTAAG GACAAGGTTT TATTCAATTT TCTTTTCCAT CATATTCCGC TCAGTTTAGG	3420
CGTCCCTATC CTTTTTCAGG GTGAAAATTT GCCAGAATCT ATCCAGATTT TAGTTGAAAG	3480
GAATAAATTT CTTTATACAG TCATCAGTCT TTTAGTGAAT GATATTTTTC CGAAATATCT	3540
TCATACAGAG TATGAGTATG GCATGATTGC CCTACATTTT ATCTCTAGCT TAGGCCGTAG	3600
TCCAGAGATT TATCCAGTCC GTGTTTGTCT TTTAACGGAT GAACGTCGGG TCACTAGAGA	3660
TTTATTAGTC AGTAAAATTA AGAGTGTTC TCTTTTGTGA GAGTTGATAG ATATTCAATC	3720
TCTAGTAGAT TACCACAGTA TTGATCTCAG TCAGTATGAT TATATTTTAT CTACCAAGCC	3780
GCTGACTAAT CAGGAAATCG ATGTAATTTT TAGTTTTCCA ACCGTCAAAG AATTGCTTGA	3840
ATTACAGGAA CGACTTCAGT ATGTACAGGC ACATCGTACA ATTGTCGCGC GTGATGCTAT	3900
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AGCTAGCGAG GAAGCTAGAG ATTTAATGAC AGCTATTAGT CAGTCGATTA TTGAAAATCA	4320
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ATTTAGTCAT TTGTCATCTA GTATATATGT CCCTCAAATA GGAAAAGGAG AAATTGAATG	4920
AAACATTCTG TTCATTTTGG TGCCGGTAAT ATCGGTCGTG GTTTTATAGG TGAAATTCTA	4980
TTTAAAAATG GTTCCATAT TGATTTTGTG GATGTCAATA ATCAGATAAT TCATGCTCTG	5040

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AAGACGGATA TTATTACTAC TGCAATCGGA CCTAATATAC TCCCTTTTAT CGCCGAACTT	5220
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AGGATTGTTT CAGCACAAAG TCACGAAGAT TCCCTTTTGT TTGTGGTCTG GCCCTTTAAT	5460
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GCAACTTCAG CTTACATTGG TGCGCATTAT GGTGCCAAGA CAATTTTGA AGCTCTTCAA	5640
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GAAGTAGAGG TGTACTATTC TAGTTTCAAT CTAATATATA ACTGAAAAAT TAGATAAATT	6660
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TGAGTGTTTT AGTTAGGAAA AAGGCTTGTT GTCTATAATT GTCTGCATTA GTCTAGATTT	6780
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AAGAAGCTGG	TCTTGAAGTG	GTTGCCCAAC	CAAAAATTGA	CGTAACTTCA	ATGGAAAAAG	7140
GTCAAGACTG	GGTTATCACT	GCTGAAGTCG	TTACAAAACC	TGAAGTAAAA	TTGGGTGACT	7200
ACAAAAACCT	TGAAGTATCA	GTTGATGTAG	AAAAAGAAGT	AACGTACGCT	GATGTCGAAG	7260
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CTACTCAAGA	AGACCTTCAC	AACCAATACC	AAGCAGAAGC	TGAGTCACGT	ACTAAGACTA	7920
ACCTTGTTAT	CGAAGCAGTT	GCCAAAGCTG	AAGGATTTGA	TGCTTCAGAA	GAAGAAATCC	7980
AAAAAGAAGT	TGAGCAATTG	GCAGCAGACT	ACAACATGGA	AGTTGCACAA	GTTCAAAACT	8040
TGCTTTCAGC	TGACATGTTG	AAACATGATA	TCACTATCAA	AAAAGCTGTT	GAATTGATCA	8100
CAAGCACAGC	AACAGTAAAA	TAATCTTAAT	AAACAGAAAA	CCCACCTGAA	TTGGTGGGTT	8160
TTCTGATGCA	CTATTTTCCA	AAAATCTCTT	TGAGGTCTGT	GTCTGTAATC	CCAAATCATGG	8220
CTGGGATGCG	GTCCCAGTTT	TCTTCGGTTA	GGATGTAGGA	TTGTTTCAGAG	GCACTTGATG	8280
TGACTGTTTC	AGAGACAGCT	TGTTGCTTTT	CTTCAACATT	CTCCAGTAGA	TCACTGAAGC	8340
GTTCAATCAG	ATAGGTTTTT	CGGGCAGTTC	CGATGTGTTG	GGTAGCATAG	TCGAAGGCTT	8400
GTAATTCGCC	TAGTAAGATG	AGTTTGCTTT	TGGCACGTGT	AATGGCTGTG	TAGATGAGAT	8460
TTCCGCTCCAG	CATACGTCGG	CTAGCACTAG	TAATCGGTAG	GATGACAACT	GGGAACCTCAC	8520
TTCCCTGAGA	CTTATGAATA	CTCATGGCAT	AGGCCAAGCG	AATCTTGTA	CATTCTGTTAC	8580

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CAGCATCGTT AACCAAATGA ATGACCCTGT CTCTCTTACG ATAGTGACAC TGAGGAGCTT	8760
CAAAACTGAG TTGATCTTTT TGTGGGGGAT TGAGCAGGTC TTGCATGAGC TGATTGATAG	8820
CATCAATCCC TGCCGTCCCT CGGTACATAG GAGCCAGAAC TTGGATATCA CGGGCGGGAA	8880
TACCATTTCT GAGGGCGGCA CCTAAGATTT TTTCAATCGT GGCAGGAATA TGGCCACTAG	8940
CAATTTCAAA GTAGGAACGG TCAGCTTTTT TTTGGGTGAA ATCAGCTGGC AAGATGCCCT	9000
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TGACAGAAGG TAGCTGATCA CTGTACCTA CGATGAGGAT CTTACTGTTA GAAGAGATAT	9180
TGGAGAAGAG TTGATTGGCC AGCCAAGTAT CTACCATAGA GAATTCATCC ACGATGATAA	9240
AGTCAGCATC TAGGTAATCT TCCAGATGAC TGGTATCATC GTCACCTGTC ATTCCCAAGT	9300
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CAGTTGGAGC AGCAAGAAGA ATGGGCAGAT TGCTTTTCTT CCTGAAGTCA AGTCCTTCTA	9420
AAAGGGCATA AACAGCAATG ATTCCATTGA TAACAGTTGT CTTACCAGTA CCAGGCCCCAC	9480
CTGTGAGGAT AAAGACCTTA TTCTGGATAG CATCACAGAT AGCCTGTTTT TGAATGTTAT	9540
CATACTCAAT TCCCAGTTCT TGCTCGACAG TAGTGATATG TTTTGAATG GTTTCTAAAT	9600
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CAGCGAAAAA GAGGCTGTTG TCAAAGATCT TGGTATCAAT CTGCTGAACC TTGTCTTCTT	9720
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TATCCTCAAC CAGCTGGTAG GGATAATTTT CAACCACATC AAGGGTTTCT TCCTTGTAAT	10020
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TCATCTCCGT TCCGTAGTTG AGACGGAGAG TGGAGACGAA AGCCTCGCGA TTTTGGCAG	10140
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CGCCATAGGT ATCCACGATT TTCTGAGCTG TCTTGAGACC AATCCCTTG AAATGGCTAC	10260
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CCTCAATTAC ATCAGCCATG GTTCCTGTGA CAATGATTTC AAAATCATCA AAATCCTCTG	10440
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AAACACTGTT TTAAGCAGCC TACGGCTAGC TTCCTAGTTT GTTCTTTGAT TTTCATTGAG	10740
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TGCCTCTTAG GTTCTTAAA ATGTTCCGAT ACGGGTGATT GGCCATAAGC GGAATTAGC	10860
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GAAGAGAATT TCGCCATCCG CTAGGGTCGG ATCCATGGAA TGTCTTCTA CGCGAACATT	11340
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GATAGAAACC GTTGCTTGAG GTAGTTTCAA AAAGTAGCGG ATATAGGGAT TCTTGCTAGG	12240
AGCCAGACTG GTTTGATAGT GTTCAAGAAA AGCCTGAATA TCCTTTTCGC TTGGTGTGAG	12300
TGTGATACTT GCCATAGTTT CTATTGTACC ACAAAGCAG TAAAATTTGT AAAAAGTAC	12360
AAAATTAGCG AATTTTGCTA TAATATCGTG AGGTGAATTT TATGGCAAAT CTAAATCGAT	12420
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GCCGTGAGAT TGAATTTGAC GATAAGGAGC AAGAGCTAGA AGAACTCCGT CACAAGCTTG	12660
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AAATTGCAGG AGTCTGCAAG AGGTTGGAGA TGGGAGCGGA TCTCAATATC GAGGAGTTCC	13620
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AGTTTGATCT TGTTCAAGCC CAGCAAGAAA AACCAGTCAA GAAGAAACAG GTCAATGTTG	15420
TGAAACGAAC TTCTGGGCGA GGACCTCAAG CTAGACTGGA TCTTCGAGGC AAGCGCTATG	15480
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GTGCGACTAT TGTCACTTTT AAAGGATAGC AGTATTCTGG ACTTTATAAA GTAAAAACTG	15720
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GGGTTCTGCT CCTATTGCAG CTGCAGCTGC CAAGACAAAT GAACCAAGTAG AGCAAGGTTT	16920
GATTTCCATG ACAGGAACCT TTATTGATAC CCTCATCATT TGTACTCTAA CTGGTTTGAC	16980
CATCTTGGTA ACTGG	16995

## (2) INFORMATION FOR SEQ ID NO: 83:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 28473 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 83:

CCGGGGCTTT TGTAGTATAA TAGAGATACG TTTTGAAAGT AGGAGGTATC TATGGACTTA 60

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ACTAAGCGCT TTAATAAACA GTTAGATAAA ATTCAAGTTT CGTTGATTGG TCAGTTTGAC	120
CAGGCTATTT CGGAGATTCC TGGGGTCTTG CGTTTGACCT TGGGGGAACC TGATTTTACA	180
ACGCCAGACC ATGTCAAGGA GCGGGCAAG CGAGCGATTG ATCAGAACCA ATCCTACTAT	240
ACAGGGATGA GTGGTCTGCT GACTCTACGT CAGGCAGCCA GTGACTTTGT TAAGGAAAAG	300
TACCAACTGG ACTATGCTCC TGAAAATGAA ATCTTGTTTA CAATTGGGGC GACAGAGGCT	360
TTATCTGCGA CTTTGACGGC TATTTTGGAA GAGGGAGACA AGGTACTTTT GCCAGCTCCT	420
GCTTATCCAG GCTATGAACC GATTGTTAAC TTAGTTGGGG CAGAAATGT TGAGATTGAT	480
ACGACTGAAA ATGGTTTTGT CTTGACTCCT GAGATGTTGG AGAAGGCCAT TTTGGAGCAG	540
GGTGATAAGC TCAAGGCGGT TATTCTCAAC TATCCAGCCA ATCCGACAGG AATTACCTAC	600
AGTCGAGAGC AGTTAGAGGC CTTGGCAGCT GTTTTACGCA AGTACGAAAT TTTTGTGTGC	660
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TGTTGAGAGA CCAGGCTATT ATTATCAATG GTTTGTCTAA ATCGCATGCC ATGACAGGTT	780
GGCGTTTGGG GCTGATTTTC GCTCCTGCGA CCTTCACAGC CCAGTTAATC AAGAGTCACC	840
AGTACTTGGT CACTGCCGCA AATACCATGG CGCAACATGC TCGGGTAGAA GCCTTGACGG	900
CTGGTAAAAA CGATGCCGAC CCATGAAGAA GGAATATATC CAACGTCGGG ACTATATCAT	960
CGAAAAATG ACTGCTCTTG GTTTTGAGAT TATCAAACCA GACCGTGCCT TCTATATTTT	1020
TGCTAAATTT CCAGCGGGCT ACAATCAAGA CTCCTTTGCT TTTCTGAAGG ATTTTGCTCA	1080
GAAGAAGGCC GTTGCCTTTA TCCCTGGTGC AGCCTTTGGA CGTTACGGGG AAGGCTACCT	1140
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TGCCATCGGG TTGGTCAGGC TTTGACTTT TCTTTCAAAT ATGGAGCCTG CCTCTGTCCA	1740
GAGCATTATC ATGAGGATAA GAGACGTTGT CATCTCAATC CCAATATCCC CTATCTGCTC	1800

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GTCTGGACT	CATGTCTACC	TTGCCTACCG	TTGATGGAAA	AGGTTTTGAC	ATGCTAGACC	2400
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GGTTGAGAAT	ATCTTTGCCA	AAGTAAAAAC	GTTTAAAATG	TTTTCAACAA	CCTATCGAAA	3480
TCATCGTAAA	CGCTTCGGAT	TACGAATGAA	TTTGATTGCT	GGTATTATCA	ATCATGAACT	3540
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GTCGTCGTTG CTGAGACGGT TGAGCAACCG GTCGAAGCCG CTCATGAGAT GCTTTTGGAC	19140
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CCAGTCCAC ACTTACCACA GAGTGTAGTT GATACAGCGG TTGACACCAT TGTCAGGCCA	19380
GTTCTAGAAG GGGTGATTAA AGAAGGTCGC CCTTATCTGG GAGTTCTTTA CGCAGGGCTT	19440
ATCCTGACAG CTGATGGACC GAAAGTCATT GAGTTCAACG CTCGGTTCGG AGATCCAGAA	19500

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GTTTGACACC CATATTCTGG GTGTTCTCGG AGCACCATTA CCAGTCATCA AACTCCATGC	21660
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GCTAGGTATT GAGGTGATGC GAGGTTATAT CCCCACCAGC CTTTAGACCA GTAAGAAATC	24840



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AGACCGATAC CTTTATCTTT GGCATAGTTA ATCAGATCTG TCATTTGACT TTCTGTAAAG	26640
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AGTCCATCAT TTCCGACTAA TAGGTGTAAG TCAGTGTAGC CATAATGTTT CGCTTTATCG	26820
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AGCTTGTGTT TGCGTGACG TGAAACGAAG GTTCCTTTTC CTTGTTGGCG GACAATATAG	28320
CCATCTTTGG CAAGGTCGTT TAAGGCGCGA ACAACTGTGA TAGAGCTGAC ATCGTACATT	28380

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GAAATGAGTT CTGCTTCAGT GTAAAATTTA TCTECACTGC TAAACTGCCC AGAGATGATT 28440

TTATTTTTTA ATTCTCTTT TATGTATTGA TGG 28473

(2) INFORMATION FOR SEQ ID NO: 84:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 6749 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 84:

CCTGATGGGT GGTATGCGAG GATACAGTTC TGAAAATCCC CGTTACTTAA TTAATGGACG	60
CGAAGTCACA CCTGAGGAAT TTGCTCACTA TCGTGCGACT GGTCAATTAC CAGGAAATGC	120
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AAAAGTAGGT CGAAACTTAA CAGCAGAAGC GCGTGAGGGC AAGTTGGATC CTGTTATCGG	240
ACGAAACAAG GAAATTCAAG AAACATCTGA AATCCTCTCA CGCCGCACCA AGAACAATCC	300
TGTTTTGGTC GGAGATGCAG GTGTTGGTAA GACAGCAGTT GTCGAAGGTC TAGCGCAAGC	360
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CTCAGGTCTT GAGGCTGGTA CTCAATACCG TGGTAGCTTT GAAGAAAATG TCCAAAACCT	480
AGTCAATGAA GTGAAAGAAG CAGGGAATAT TATCCTCTTC TTTGATGAAA TTCACCAAAT	540
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GCCAGCTCTC TCTCGTGGAG AATTGACAGT GATTGGGGCA ACAACTCAAG ACGAATACCG	660
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GAGTTCTTCC ATAGCGCGGG CAGCATCAGG ATTTTCTGTA GCTGTGATAG CAAGTGCAAT	3120
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CTCAAGTTGA TTGCGGAAGG CATCTGCACC GGGTTGGCCA GCGTATTGTG TAATGACAAC	4080
GGAAACCAACA AAAATCCCTA ATTCATTGAA TTTATCAATC AAACGAAGAA CTTCTTGGTC	4140
ATAAGAAATG CCTAAGTCGC CACGTGCTTT GGAATGTTCA ATGTTGCTAG CATTAATGGC	4200
AATCACAACC TCAACCTGCT CTTTCAATTC TTGCAAGAGC TTGATTTTGT TGTCAGGTTT	4260
ATAACCAGGA AGGACACGAG CAGCGTGGAA ATCTTCTAAC ATTTTACCGC CAAACTCTAA	4320
GTAGAGCTTG CCGTCAAATT GGTAAATGCG CTCCAAAATA TGGTCGCGTT GTAAATTCAA	4380
ATATTGTTCA GAACTAAAAG CTGTGTTTTT CATTTTTTTA CCTCTGGACT CTATTATAAT	4440
AAAAAATTGG AAGTTAGGAA ACTACGGAGC TAAAAAGAA ATTAAAAAGA TTAAGCAAAC	4500
GCTTGACAAA AATTTTAAAA AGTGCTATCA TAGACTATAG ATTATGAAAA TAATGAGGTA	4560
AACAGATGCA AGAAAAATGG TGGCACAATG CCGTAGTCTA TCAAGTCTAT CCAAAGAGTT	4620
TTATGGATAG TAATGGAGAT GGAGTTGGTG ATTTGCCAGG TATTACCACT AAGTTGGACT	4680
ATCTAGCTAA GCTAGGAATC ACAGCAATTT GGCTTTCTCC CGTTTATGAC AGCCCTATGG	4740
ATGATAATGG CTATGATATT GCTGATTATC AAGCGATTGC GGCTATTTTT GGAACCATGG	4800

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AGGACATGGA TCAGCTGATT GCAGAAGCTA AGAAGCGTGA CATTCTGATC ATCATGGACT	4860
TGGTGGTCAA TCATACCTCA GATGAACATG CTGGTTTGT CGAAGCCTGT GAAAATACTG	4920
ACAGCCCTGA GCGAGACTAC TATATCTGGC GCGATGAACC CAATGACCTA GATTCTATCT	4980
TTAGTGGGTC TGCTTGGGAA TACGATGAAA AGTCAGGTCA ATACTATCTC CACTTTTCA	5040
GCAAGAAACA GCCGGATCTC AACTGGGAAA ATGAAAAACT TCGCCAGAAA ATTTATGAGA	5100
TGATGAACTT CTGGATTGAT AAAGGTATTG GTGGTTTCCG TATGGATGTT ATTGACATGA	5160
TTGGCAAAAT TCCTGACGAG AAGGTAGTCA ATAATGGTCC TATGCTCCAT CCCTATCTCA	5220
AGGAAATGAA TCAGGCGACC TTTGGAGATA AGGATCTCTT GACAGTAGGG GAGACTTGGG	5280
GAGCAACTCC AGAGATTGCC AAGTTCTACT CTGATCCAAA GGGCCAAGAA TTGTCTATGG	5340
TCTTCCAGTT TGAACATATC GGTCTTCAGT ATCAGGAAGG TCAGCCTAAA TGGCACTATC	5400
AAAAAGAGCT GAATATCGCT AAGTTAAAAG AAATCTTCAA CAAATGGCAG ACAGAGTTAG	5460
GAGTTGAGGA CGGCTGGAAT TCCCTCTTCT GGAACAACCA TGACCTCCCT CGTATTGTCT	5520
CAATCTGGGG AAATGACCAA GAATACCGCG AAAAATCTGC CAAAGCCTTT GCAATCTTAC	5580
TTCATCTCAT GAGAGGAACT CCTTATATCT ACCAAGGTGA GGAGATTGGG ATGACCAACT	5640
ATCCGTTTGA AACACTGGAT CAAGTAGAAG ATATTGAATC TCTCAACTAT GCGCGTGAGG	5700
CTCTTGAAAA AGTGTTCCG ATTGAAGAAA TCATGGACAG TATCCGTGTT ATTGGACGTG	5760
ACAATGCCCC TACCCCTATG CAATGGGACG AGAGCAAAAA CGCTGGTTTC TCAACAGGTC	5820
AACCTTGGTT GGCGGTTAAT CCAAATTACG AGATGATCAA TGTCCAAGAA GCGCTGGCAA	5880
ATCCAGATTC TATTTTCTAT ACCTATCAGA AACTGGTCCA AATTCGCAAG GAGAATAGCT	5940
GGCTAGTTCC AGCTGACTTT GAATTGCTTG ATACGGCTGA TAAGGTCTTT GCTTATATAC	6000
GTAAGGATGG CGACCGTCGC TTCCTAGTTG TGGCTAACTT GTCCAATGAA GAGCAAGACT	6060
TGACAGTAGA AGGAAAAGTC AAATCTGTCT TGATTGAAAA CACTGCGGCT AAAGAAGTAC	6120
TTGAAAAACA GGTCTTGGCT CCATGGGATG CTTTCTGTGT GGAATTACTA TAAATATTTT	6180
TTGCAGAAAA ATTTAAAATT GAAATCGTAT AAAACAAGG GAGGACTGTA TAAAAGACAG	6240
AAATCCTTTG TTTTATATA CCAAAGTTTA TAACTTTCA TTCTTGAAAT TCAATTAAC	6300
TTACAAATTC CCACTATTAA GCAGAAAGAA GATGAACATA AAGAAGCGTG TCCTTAGTGC	6360
AGGCCTGACT TTTGCATCTG CTTTGCTTTT ACCCAAATCA TTCATACCTC TCTCAACTAG	6420
ATGTAACCTA CAAAACCCCT GACCTCATGA GCCACTTTCT TCCTCCTCAT GAGGTCAGTT	6480
TTACTTTCTG CTGTTCCAGT ATCGTTTTTC CTCGCTAGAT TTCCTCAAAA GGGCAGACTC	6540
CTCCCTTGGT GCGTCACACG ATTTTTTCAT CTCGACTGTT CTTTAAATGCA TCATTAACGA	6600

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CGCTTTTCTT CTAGGTGGTT CATAAGGAAC AGGAAGATTC AGGTTGACTT TTCTAATCCT	6660
AGAATAAAGT GCTGAAAACA ATTCGGAATA GGCATAGAGA CTAGACAATT TGAGGAGCTG	6720
CTTGCGTCCT GTTCGAACAC ATTTTCCGG	6749

(2) INFORMATION FOR SEQ ID NO: 85:

(i) SEQUENCE CHARACTERISTICS:

(A) ~~LENGTH: 1842 base pairs~~  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 85:

TCTACCCATG GACTTTGAGG CATTCAATTGT TCCATCTTCT AGTGGCGAAT CTTTGGATAC	60
AAACGATTCA ATTCACCTGG ATAGTGAAAC TCTCCCGCAA ACATTTTCTT GGTAACTCA	120
ATCCAGCTGA TATTCTTTTC AGCCAAAATA ATGGACAAGT TCTCCCAAAA TCGTTCAGCC	180
ATATTGCTTC TCCTTTAGTT AGATAAATAA TGTGTTTGGC CCATGTAAAT CAATTGTTTC	240
GTATCTCTTG GCAATAGAGC TCTAGCCTCT TCCAAATTCA GACTTGGATA AACTCGCTTA	300
TTTGAAACCG CAAGAGGAAG TCTGATGGTT AGTTCAGGAT TTTTAAAAAT TATCTCAACG	360
AAATCCGTGA ATCTTAGATT GTCACGGTTC TTAAATCGTA ATAAATTGGG AGATAAAAAAC	420
TCAAAACAAT CTGAAGAATA GCTCATCATC TCAATTAATT TGTCCTTTGT CATTTCAGAA	480
ACTGAATGAC AAGATACCTC TATGCCATAG TTTTGAAGA AATCTAAAAG AAGTTGATTT	540
CTTTGTCTAT TTTTACTTAG ATAGAGATCA ATCATGGGAG ACCTCCCAAA GATTCGGTTC	600
CATTTGATAT TCTGACACGA TTAAGGAATC TAATAAATTA AGGAATCTAA TAAATTTGCG	660
AAGTTAATCG GTTTCTTGTC TTCATCATAA GCTTTTACAG TTAAGTTGGT TGTAAGTATT	720
CCCTCTTTTC CCTCGGCTCG ATAGCCTTGT CCATATAAAA CAAAAACGAG ATTTTGATGA	780
TCATCTACAA AGGCATCAAC CCCATTCTTT ATGTCTTGAC TTTCAAGGAA TTCCATAACG	840
TTTTGAAGAT AGGATTCGTA AAATAGTGGG TAGTTATGTT TTTTATGGTA ATCATCTAAA	900
AATGTCACCT CAAACTCACA TGGAGAGTAA TTTTGACTTT GAACAGCCTA AAAGTGCCAT	960
CAAATTTGAA TTGGAATAAA TCAAATAAAT AGCCCCATCC TCATCAATCC AACCTTTGCT	1020
CAAAGACAAC TCCAACCGAT CTTTAAAAAC TGAGTAAACC ACCTTAACCT CCAGTTTCAT	1080
ATTCTTATAC CGTTCACTCT CAAATAAAAG TTTGGGGAGC TTATAATAAC GCTCTGATGT	1140
CTGATATTGA TTAGCGGTAA TACGCTTCAT TATTGTCCCT CCAAGACTAA AATTCCAACA	1200

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TTTCCAAATT CATCAAATCG GATTAAACCT ACTTGTCCA TTTTCATCAAC TAACTGAGTT	1260
GCTTTTACCC AAATCATTCA TACCTCTCTC AACTAGATGT AACTTACAAA ACCCCTGACC	1320
TCATGAGCCA CTTTCTTCCT CCTCATGAGG TCAGTTTAC TTTCTGCTGT TCCAGTATCG	1380
TTTTTCCTCG CTAGATTTCC TCAAAAGGGC AGACTCCTCC CTTGGTGCCT CACACGATTT	1440
TTTCATCTCG ACTGTTCTTT AATGCATCAT TAACGACGCT TTTCTTCTAG GTGGTTCATA	1500
AGGAACAGGA AGATTCAGGT TGACTTTTCT AATCCTAGAA TAAAGTGCTG AAAACAATTC	1560
GGAATAGGCA TAGAGACTAG ACAATTTGAG GAGCTGCTTG CGTCCTGTTT GAACACATTT	1620
TCCCACCACG TGAAGAAAAA GATGGCGGAA GCGTTTGATT GTTAAAGTTT GGAAGTCACC	1680
TCCAGCTAGA TGTGTGAGAA AAAGATAGAG ATTGTAGGCG ATACAGCTCA TCATCATACG	1740
AACTTCGTTT TTGATTAAAG TTGAACTATC CGTTTTATCG CCAAAAAATC CCTCCTTCAT	1800
CTCCTTGATG AAATTCTCGG CTTGACCACG TCCACGATAA AG	1842

(2) INFORMATION FOR SEQ ID NO: 86:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 19390 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 86:

TCATCTTTAT CTCCTCGAAA TTTTCTAATA TAGCCATTAT AACAGAATT TGTGAAAATT	60
CCTATTATAG TAAATCACTA TTTCAGTATA AAAAGAAAAA ACGAATCAGA CGATTGCTC	120
TTCTTAAAAT CTGAAAATAG CTTTCCAGAA AGGATTAGCC GATTTTTTGC AGATTGAGCA	180
CTGCATCGTG ACTCATCAAG ACTTGACCAT ACTCTGTAA GACTGAGCGA CTGATATCAC	240
TATCGTCTGC AAATCGCGC ATACGGGCCA ACAGCCAAGC TGGATATGGG CTTGGATGAT	300
TTTCAATATC CACTAAAATG GTCAAATAAT AGCGCTCGTT CATTTTGTAG AGTTCAGAAG	360
TTTCCATTTC AAAAGTCACT GTCTTGCAA AAGCTACCAA GTCAGCCAAC TTAGCAAAAG	420
AAAGGATGTA GTAGATGTAA GGTTCTTTCT TACTCTCAGC TTCTTGTTCA GCCTGCTCTT	480
GCTCTTCTTC CTTGACTTCA ACTTGCTCAA GAGATTGAAT GGCTTCGATA TCATCCTTGG	540
TTTTGTCTGC GATGCTTTTT TCCAGGTTT TGATAAATTC ATCTGGAGAC ATTTGAGCCA	600
ATTCTTCCAT ATCTGGCAA TCCGATAAGT CTCAAAATC TAGATTTTGG TCAATCTTTG	660
ACTTGGTCAC AAAGACATCT ACCTTATCAG GTTTTGGACT CACACGGAAG CTCAACATGC	720
CTGTATCCAG AAAGCTATCA GGCATCTCTA GTCATCCAA GATAGCATAA AAGAACTCTT	780



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CTGTTTTTTC TTGAGGAACG AGAAAGTCAG CAATCTCCAT TCCACGATCC ATCAAATCCT	840
CTAAAGATAT CGTGATTTTT AAAGTTGTAT CACTAATTTG TTTCATTTTC ATTGCTAGTA	900
ACCTCATACT TTCAGTTCTA TCTATTATAC TAGATTTTTTA CGATTTTATC AAAAGAAGGC	960
TCCTCTATAC GGATAGATTT TCCCTAGGGT CTTTCTATAG GAGACTCCAA AAGAAAATTT	1020
CTGCAGACAG ATAGAAAAAG CCTTCAAAAT CGGCTAAGAG CCGACTTTGA AGACCTTATA	1080
CATCAGAATA CTTATAATTT AAAGGTTGCT ACACCGAGGA TAGAACGATT TAAGTTTCTG	1140
AGAATTTGAA GACTTTGCTC AAAATTTCTTA TAACGAGTCA CTCCGTA CTC TCAACAAGA	1200
AGGACTGTAT CTCTTTCCAA AAGAGATGAT ACATCCTGTA AATCTACAAA ATGCATTCTT	1260
TTTAAAGCTT CTTGACTCTG TTTCAATTTA TCTAAGATAG CTTTATTTGA GCTAACGATC	1320
GTCAATTCTT GTCCAGTATT TTTGTATGAC AAAACATCTG CTAGGTTAGC AATTGTTGTA	1380
ATCTCTGTTA CAAAATCAAT TTGATACTGA GAAAAATCAC CTACTCTATT GATTGTTGGA	1440
TTAAAGAGAT AAATAACAC ATTTCCCATC ACAACCAAAA TCACACAAAC CACTCCAATA	1500
ACAACTAAAC GAAGAATCAG ATTTTTCACA TTTAAGCCAA GCGCTGTTTC ACCATTGCG	1560
TTCAATTCTT TAGAGTTGAT GGTTCAGT TTTTCAATTT TCACATTTGC ATAGGCATGT	1620
TTAAATTTCT CAATCAACCC ATCAATTTTT TTCTCTAACA AGTTATTGGC ATCTTTACTT	1680
GATGTCAAAA TTTTCACACC AACCCCTGCA TCGTCAATCA TATAGTAGAC GGTCAATTTT	1740
TTCCACCAAT AGTCATTCTG TGAATTTTTT AAGGTTGTTT CTGTCGTGTC TAATTCACTG	1800
GCAATTTTTT TCAACTCACT GGGTTCTACA TCATTGAAAA GATAAGCTCC ATTCAAATTA	1860
CCATCAATCA ATTTCCCATC AAAATCACTA TAACCACCAA TTTGATGATT CAAAATCGTT	1920
TTGTCCGACT CTTTGGGAGG AGTGATTTTA TAGATAAGAT AAGTTGAATA ACTTGTGTA	1980
TCTTTGACAG TGTTTTTATT CCTAACTGCT TTAATTGTAA ATGGTACAGC AATGAGAGCA	2040
AATAAAGCGA TGAGAGCTAA AATATTTGCT TTTCGCTTTT TATAAAGATT TGCAACAAA	2100
TCAGCTACTG AATAATGTTT AAACATGATT TTTTCTCCT TTGTTTAGTA GATACTAGTT	2160
TTCTTTTGTA AGCATTTTTG CTACAAATAT AATCACAAGA ACAATCCCC AGAATTGCAT	2220
TGTAATAAAA TTGAAGAAAC TTTCTGAAAA GCTGCTTCTT GGCATAAAGA ATAGATTATT	2280
CAAGATGAGT AGGGATAAAG CAAATAGGAT TGTCTTGAG CGATAGGCTA CTTGCAGCAT	2340
GGCTATAAAT AATACGCCGA GTAAGAACT AAGCAGAAAG ACTCCAATCA TACCATAGTC	2400
GGTATACAAC TCCATGATAT AACTACTTCC GATACCATGC CCTTTCAAGT ATTCCTTGTT	2460
CAAGACAAGA TAGGATAGAT TGTGGGCATA ACTATTACTA TCAATAGCTA GTTCCACACT	2520

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ATTGGTTGTA TGTTCAAAGG CTTTTCCTCC GAAAAATGGCT CCCAAACTCC CCCTTGCAAA	2580
ATAATCAAGA ACAGGACCAA AAGTAAAATT ACGGAAATCT CGGTAAGGGA GGCTACTGTT	2640
AAATAGAAAA CCTCGAGCCA GAACACCAAA ACTAGTCCCT TGTTTATAGA TAAAGTCAAG	2700
TAAGATATCC CAGAAACCTG TATGGGAAAC TTGGACATTA TCCCGTACAT AATTGAGTAC	2760
TCCCATCGCT AACATGAGAA TAGGAGAACC TACAAAAATC GCTAACTTTT CTTTAAACCC	2820
AATCCATTTT CCTTTTTCAG TTTGCTCCCG CATAAAGTAA TAAACAAAAG CAAATmAAAT	2880
ACTTAAAATA AAGGGATTTC GTGTCCCAAT TGCCAAATGA ATAGTATTAG CTGCAATAAA	2940
GGAGACAAGC ACTGCTGTGG CCTGCAATTT CTTTGGCTTG GTTGCCAGAT ACATACACAT	3000
TGCATAGACC GTAAAGCTAG ACAAAATSTA GGTAAAATAA GGCAGTTTAC TTTCAAAATT	3060
TGCATAGTAG GCATAGTAGG AAGTCTGCAA ACGATACAAG AGCCGTTCOA ATAACCGAAT	3120
GAAATAGAAA GGATAAGTTA GAAGAAAAAC TCCTAGTGAT ACAAAGCGTA ACCGCTTGAT	3180
ATAAACCTCT TTTAGAGAAT TTCCTATATT TGCTACTTTT ATTTTCTTCC TAGCTATGAA	3240
GTAACGAGCC AGAATGCCTC CTGTGGTCAA GCCCAGAATC GAAATCATGA CAACTATAAA	3300
GGCAAAACGA TAGGCTATTG GATGATAGGT ATCCAAAGCA CCATCCCTAA AATAATCAAT	3360
GGTCGGTCTT GATACCAGAA ATACAAAAAT GGTAAATAG AAAATAAAAT GGATTAAGTA	3420
ATACTTGATA TCATTCCAAC AAGCAATTAA GCTACTAACC AACAAGAACA ATAAAGTAGA	3480
AAGTAAGCTA ACATTATTAT TATTAACAG ATACACAATT CCACTTACTA GCGTCAAGGC	3540
ATAACTGACT ATGGTCAAAC TAAATAATAA TCGTTTCCCA TCAATCACTT GGTCACCCCC	3600
GTTCTAATGT AATTTTITAG ATTTTICAAT ATTTTTCAGT AATAAGAATC GATATAAGGA	3660
AATATTTATG AATAGGGCCA AAGCACTAAT TCTTCTCCCC TTACGGAAAA TTGGATTCTT	3720
AGAAATAGCA AAGGCATGGC CTTTTAAAAA ACGATGAATC TGAGAATAGG CTTCAAACCTG	3780
TTTATACTGA TCATCTAGCA ACATCTTATC CAGAATAAAG AAGTGGGCAT AGGCCAATCT	3840
GAAAAAAGCG ACCTCTTTCA AGTCAGGATA GTTTTTCACA ACTTCATTAT AAAACTTITG	3900
GTAGATATCA ATATAGGCTA AATCCTTCTC TGCATAGGGT TTGGTCGTAA TACTATCCCC	3960
TCTATGGAAA TAGTAATAAT AGGGTTTAGT ATTAACCACA TACTTCTTGG CCAACTTGAT	4020
TAAATCAAAA TGGTAATAGG CATCTTCGTA AATCAACCCC TTAGGAAAGG ATAGGGCAGT	4080
TGCAATCTGT CTCTTGATTA GCTTATTGCA AATCGTCCCA GGTATTTTTT CACCTATGAG	4140
GTATTCCTTT AGAAATGTTT GAGAATCACA GACAAAATAG TCATCCTGAT TGGCTGACTG	4200
TGGGCTTTCA TCATTAGCAT AGACATTCAT GACACCACAG CTCGAAACAT CCGCATCTTC	4260
TTGAACATAAT TGCTCATATA AGCTCTGAAT CATTTCTGGA TGGATATAAT CATCTGAGTC	4320

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AATAAAATC AGATAATCCC CGTGAGCCTG CTTTCATCCCA TCATTTCCTG CTTGCGACAA	4380
TCCTTCGTTC TTTTATGAA GCACTGACAC CCTGTCATCT TGTTTCAGCGA TTGAATCACA	4440
CAAGCGACCA CTTTCATCTG TTGCACCATC ATCAACAAGA ATAATTTCCA GATTTTGATA	4500
GGTCTGCTTC TGAATGGAAG CTATCGATTT TTCTAGGTAC TGCGCCACAT TATAGACTGG	4560
CACAATCACA CTAATTAATG CAGTTTCCAT GCTACTCCTC TAATAGTTTT TCTACTTGT	4620
CGATTTGTTT TGTAAATGTA AATTGTTGAA TGAATTGGCT AGCCTCATCG ACATCAAAGT	4680
TTGAGGCAGA AGTCATGTAA TTAGTAATCG CCTGAGCTGC CTCTTGATTG CTCTCAATGA	4740
TTTGTCCAAA TCGTCCTTCT TGGGATAATT CCTCAGCCCC TCCAACGTCC GTAGAGATAA	4800
AAGGGAGTCC CAGACTCAAG GCCTCCACAT AACTCCAGG AAAACCTTCT TGTTTAGACA	4860
TAGACAAAAG AACTTTCGTC TGAGATAGAT ACTGATAAGG ATTTTTTTGA TAACCAAGGA	4920
AATGTACATA GTCCTCAATC CCATACTCTT TGACTCGTTT TTTTCAGTTCC TCTTCCATAT	4980
CACCAGCCCC GATAAAATAG AGATGATAGT TTTTCCCTC TTGGTGTAAT AATCGTATCA	5040
CTTCCACTAC ACGGTCAGAA CCCTTATTTT CCTCAATCCG TCCGATAGTA CAGATACTTT	5100
GAGGAGCAAT CTCGATATCG ATCTTCTCTT GAGATTTTTC TAGAATAGTC TGAAAATCAT	5160
ATCCATTGTA GATTGTCTGT AATTAGAAG TATAATCTGG ATAAACTTCC TTGATAGAAT	5220
TGCTGGTCTT TTTTGAAATC CCTACAATTG TATTCGCAGC ATCCAACCTG CTTCTATGTG	5280
ATTCTCTTTT AGAGCTATCC TTAAGAAGTT CTTCATACT TCCATGAATC CAAGATATCT	5340
TCTTGACTTC TCTTCTTTTA GAGAACAACA GTGGTGGATT CATAATGGTA AAAGAACTT	5400
CAACATCATA ATCATCTTTT ACAAGCAAAC GACGAGTCAG TCTTGGAATA TAAATTTCTCA	5460
TTCTCCACAA AAAAGCTCGT AACCATCTGG TTTGGCGATA ATCTTGAAGG GATTTTAAAA	5520
TGCGTACATG CTTTGGAACA GATTCATATC CCTTGTCAA GTGCTCCATT TCAAGAATAT	5580
CAATATCATA CTTTCTGGA TCCAGATTTG AAACAATGGT TGATAGAATC TTCTCTGCAC	5640
CACCTCCAAG AGAAAAAGAC CACATAAAAA ATAAGATTTT TTTCTTAGCC ACCATATTCT	5700
CCCTTGATTT CTGTATAAGA CTTATCCATA TCAGCGATGA CAGCATCATG ATGCGGTACC	5760
TGCTTGCTG CTGGTGGAGG CGTCATATAA TCCCCAAAAG CAGTTCTGAG ATAGACATCA	5820
TAGCCGATTG GAATAGGCAT CTCTGTTTCT TCAAATGGCA AGAAAAGATT GTCTTCAAAA	5880
GATGTGATTG GGTACTTGT TCTCATGTAG CCAGGACCTG AGCATAATTC TGTAATGCCA	5940
TCACAATCAG CCAAATCATA CTTAGTCATT TCTTCTCAG CTTTTTTCCA GATGCGATAA	6000
CGGAGAGATT TTGGAGTCAA ACCCAGTAAA ATGCGACTTC CCCATTTTCAT GAGATCACCA	6060

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TGCTTTTCTG GAATAGTTTG CGCACAAAAG AGTGAATAAA TCAAGGCCCA ACGAACCTGT	6120
TTTTTCCGCT CAGCTGGATT TTTCGGATAA TAATCCAAAG GCAAAACATC CAAGGCCAGA	6180
CCATGTGGCA AATCCAAATC CTGCTGATAA GGCTTGATAC AGGTGGTTTT CTTGTCACGA	6240
ATGGTAATAA AAAGATTACG ATCAACAAAA TCCTTGAGAC TCTTTGACAA GAAATAACGT	6300
TCATCTGCAT AACGAGGCCA TAATTCTGCT AATTTCTCAT AATCTTTACG AGGCATAAAA	6360
AAGTCTAGGT CGTCGTCCCA AGGAATAAAT CCCTTGTTTC GAAGGGCACC AATAGCGCCT	6420
CCGCCACAGA GATAACAGAG CAAATCATGT TCTTTACAAA AGGCCACAAA ATATTCAGCC	6480
ATCTCCAGAC TACGAGCCTG AATTGCTTTT AAATCAGTCA TATGTTTCAT TATTCTTTCT	6540
ATCGTATCGT TTCATTATAC CACAAACAAG GGGTGAAAAT CTATTGCAGA CTGTAAAAAA	6600
TCAAAGCCTG ACTGCTATCC AAATAGCTAT CAACTTTGA TTTTCTGTC TTATACTCTT	6660
CGAAAATCTC TTCAAACCAC GTCAGCTTCA CCTGCGCTA GGTATAGGTA ACTGACTTCG	6720
TCAGTCTTAT CTACAACCTC AAAACTGTGT TTTTAGCAGC CTGCGGCTAG CTTCCTAGTT	6780
TGCACTTTGA TTTTCATTGA GTATTATCTT ATCTTAAGCC CATTGAGCG AGCTTGGTTT	6840
GATATTTGTT TTGATCAACC AGCAGGCCCA AGCCCCATA AACATCATAG GCATCTACCC	6900
AGTCACCCAG TTCTGGAATC GTCAATTTTT CAATACCATT TTTTGCTCCA TCCAAAACAG	6960
ATAAACCGTT TGTTAGGAGG AAAGTATAGG GTACGTTGGT TGAGGTCATA GCAAAACCT	7020
TTCCAAGAGC TTCAGAACCA GTGAAAAGTT TAGTGGGATC TTTAATTTGC TCTAAAATTG	7080
CTGTTAAAAC TTGTTGCTGT CTTTTGTAC GCGCGTAATC TGCCTCATCA TCATCACGGA	7140
AACGAGCATA ATTGAGCAGG GTCGAGCCAT TCATCTGCTG TTTTCCGACT TTAATGGTTT	7200
GGGTTGGAGA CTCAGTCTCG GTAGCGTATA AATCATCTCC GACTGTAGCT TCTGTTAGGG	7260
GACGCCCATT CAATGTTGAA AATTGAGCAT CAATCGTCAC CCCATCAGGG AAAAGCGTGT	7320
CAATCGCTGT GGCAAAGGCC TGGAAATCAA CCAAGGCGTA GTACTTAATG TCCAAGTCAA	7380
AATTATCTTT CAAGACTTGG CGAACCATTT CTGCCCCCTT TTGCCCCCTT TGTTCCTCTA	7440
ACTCGTAGGC TACGTTTAAC TTGTTATCTG TCTGTTTTCT ACCATTAATC ACTTGACTAT	7500
AACCATCTAT ATAGACCAAA TTATCACGCA TGAAACTGAC TAGCTTCATT TTCTTATCTG	7560
AGCCCCGAC ATTTAATACC ATAATAGAGT CAGTTCGTGT CTCAACACTG TTCTGGCCGA	7620
TTCGACCATC AGTACCCATG ATTAAATAT TAACTCCATC TCTAGTGTC TGACCATTAA	7680
AGACTTCTAC TTGAGCTGCC CGGGCATCAG CAGTTTTCTT TCGGCTAGCA TCTTGTAAC	7740
CACGCAAAAA CATGAATACC ATGGCCAAAG CCACACAGAC CAAAAGTGAA AAAATCACCA	7800
TAAAAATTCG TTTAAGACGG AGCTTCCGTC TTTTCTTTTT TGGAGGAAA GAGAGTGCTT	7860

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GTGATTTGGA TTGTGAGCGA CTCCGGTTCG CATAGCTTGG TAAGTCAACC TGCTCTTCTC	7920
TTTCTTGTTT CAAGCTAGAG CTACTATTTC CCCTAGCAAG AGTTAGCTTT TCTTGCAAAT	7980
AGGCCAACTC ATTTTTTTCT CTCTCATTGA GATAGTGAAT ATTTTTTAGC AAATAATCAT	8040
AACGCAACTG CTCATGATGA CTTAAGGGAT TTTCTTTACT CATCTTCTCT CCTTTCCATG	8100
GTCTGATATT GGATAAATAG GATAGGCACC CAGAATTTTA TACTGGATTG CAATCGCTTC	8160
TAATCTTTT TGGGCAAAGT GGACCAAGTC CTTATCGGTA TAATCCACAT CGATAATGAA	8220
AAAGTATTCA CCCAGTGCTG TCTTGAGTGG ACAACTTTCA ATTTTTGTCA AGTCAATTCC	8280
TCGCCAAGCA AAGGTCGACA GGGCCTTATA AAGTGCACCT GGAAGGTTGT CAGGTAATGT	8340
CAAGGCCAAA CTCATCTTTT CAGTTTGTGC TTGCAAGGGA ATACTAGGCT TTTCAGCTCC	8400
TAGAACCCAG AAACGTGTGA AATTGGCTTC CATTTCTCTGA ATATCCTCGG CAATCAGTTC	8460
CAATCCATAT TCTTCAGCAG AACTTCTAGG TGCAACTGCT GCAAAGGGCT GGTCTGGATG	8520
TTCGGAAATA AAACGGGCCG CATAAGCTGT ACTAGCTGTT ACCTCGATTT GAGCCTCTGG	8580
ATATTGTTCA TCGATGAATT TCTTTCCTTG AGCCAAGGCC TGTGGATGTG AAAAAATCTT	8640
TTCAATCTTA GTATGGCCTG GAACCACCAT CAACTGCTGA TGAATAGGCT GAACGATTTT	8700
TGCTACTGCT TGGATGTGAG CCTGATGAAA AAGATAGTCC AAGGTTTCAT GAACACTACC	8760
CTCAATAGAA TTTTCAACTG GCACCACAGA ATAGTTCACT AATCCTTGCT CATAAGCCTT	8820
GATGACATCT GTAATGTTGG CAAAAGCCTG CAATTCCTCA TGAGGAAAAG CTGTCTGCAC	8880
AACGTGGTGT GAAAATGATC CCTTGGGACC TAGATAAGCA ATTTTCATCT TAGTTCCTCT	8940
ATAATTTCTT CTGGGCTTAG CTTGGTCACA TCCAAAACCC GACTAGCCAC TTCCTCATAC	9000
CAAGCCTGTC TTTCTTGGA AATAGCTACT AGTTCTTCCT TGCTATTATT TAGAAAAAGC	9060
GGTCGCTGAT TGTCTTATC AGCTGCGATA CGTTGGTAGA GGGTTTCAAA ATCTGCTCTC	9120
AGGTAGATGT TATCTGTATT AGTCTTGAGT AAGTCACGAT TTCTCTGAGA AATAACCACT	9180
CCTCCTCCAG TTGACACGAC TTGGTCTGTT TGTAGTAAAT CAGCTAGGAC TTCTGATTCT	9240
ACCTGACGAA AGGCTGTTTC TCCCTTTTCA GCGAAAAAAT TCGCAATGGA CATACTAGG	9300
CGATTCTCAA TCAGAGCATC CATATCAAGG TAATTAGGGT CCAAGCCTCT TGCAATAGTC	9360
GATTTTCCAG CCCCCATAAA CCCTAATAAC ACCTTAGCCA TGAATCAAGC TCTCCAAATC	9420
ATCAAAGAAA CTAGGATAGC TGGTATTGAT GGCTTCTGCA CGGTCAAGCT CCACCTCTCC	9480
ATCTGCAACC AAGAGGGCTG CGATAGCTGT CATCATGCCG ATACGGTGGT CACCAAACGT	9540
ATTGACTCTA GCACCGTGAA GAGCTGATTT TCCTTTGATA ATCATCCCAT CTGCCGTAGG	9600

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AGTAATATCT GCTCCCATAC TATTTAAGGC GTCTGCCACA ACCTGAATAC GGTCTGTTTC	9660
CTTGACCTTG AGCTCCTCAG CATCCTTGAT AACTGTTACA CCTTGGGCTT GGGTCGCAAG	9720
CAGGGCAATA ATGGGCAATT CATCAATCAA TCGTGGAATC AAAGCGCCAC CAATCTCTGT	9780
TCCTTTCAAG TCAGAAGACT CAACAATCAA GGTAGCAGAT TTAGCGACTG GATCGATTTC	9840
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TGAAATCAGG CGAATCGAGG TGCCAGAATT TCCCATTATTA AGGGCATTTC GTGGCGCTTT	10440
TAAGCCAGCC ATGCCTACAC CTTGAATGGT AATAACCCCA TCTTTATCCT CAATTTCAAC	10500
ACCAAGGTCA CGAAAACTT GCATGGTCTG AAGAAGCTCT TCACCTCGCA GAATATCATA	10560
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GTCACCTGGG ACGCGGATAC TACCATGTAA ATGGCGAATG TTTGTTTTTA GTTTCATACT	10680
GGACCTCATA CTTGCAATAC TTTTACCTAT TTTATCATAA AAAGCCAGAA ATTCCCTAAA	10740
AATTCCTGAC TTTAGGATCG TTCTTTTCTT ATTTTCAGCA TTCTGAAACT GGTTCAAAAA	10800
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CTGTAAAGAT TTTGCTTGCC TCAGCATCTG CTGCAATCGC ATCTTTAGCT GCTTTAACAG	11040
CCTTGATTC TGGTAATCCG CGTAGACCGC GACTGAGTTC GTTTCACATA TCGTAAATAT	11100
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CCAATCAACC CAAGACCTGC GATATAGATT GTTTTTGCCA TAGGAACTCC TTAATAGTTC	12240
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TAACCAGCCT CAAAGCCAAG ACCAAATTCC ACCCTTTTAA AGGCATTGAT AGAGACAACA	12660
GCTTGAGCCA ATCTTGATC CAATTTTCTA TCCCATTGGA CATAGGAACC AAGACCAACT	12720
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GGCATGAGGC	CTTTTTCCTC	AGCAACCTTG	GAAATCTGTA	CCATTCCCAT	GGCAACAGCC	13680
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CCATTCACTC	CCGTCAAGAG	AGCCACAGT	TCTGGATCCT	CAATCAAGCC	ATACTTGATA	13920
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TAGAGTAACA	TTCCAGACC	ATTGACTGCT	GGATTGCCCT	GACTTCTAGC	CCATTTCAAA	14640
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ATGTTTTTCAG	GAACAGGAGA	GGATTGGCCA	TCCATGCCCA	CACTGGTGGC	ATTAACTAGC	14760
AAATCCGACT	CGGCAATCCT	TGCTTGACGT	TCAGAAACAT	ATTCTAAAGC	ACACAAATCC	14820
ACTTTAAAC	CTGTCTGCTC	CTGTAACCTG	TCTAGGTAAG	GTCTTGTTTT	TTCCATAGAA	14880
ACGGAACGAA	CAAAGACCGA	AATCTGACTG	ACGCCATCCA	AAATAGCCTG	TGCCAAGATT	14940



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ACATGGGCAG	ATTCATAGTC	CAAACCCTTA	AAGCGGATTT	TCTCATAAGC	TCCTAAAACC	16740
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CTTATTCTAT	TCATAACTAC	CATTATATCA	AACTTTTAGA	CAATTCTCAA	AAAAGAAACT	17220
ACCTTTGCTT	TTTTACTCTT	CTTTTAAAA	ATGGTATACT	AGACTTCCTG	CAAAACTAGG	17280
AAGTAAATGT	GTAAGAATCA	CAGTAAAAA	TGCTCTTCCG	TCTTGGAGGA	GCATTTCTTT	17340
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ATAATTTTAC	CTATCTGCAT	CATTCTATTT	CGAACTCTAA	ATATATGTTT	TATCAAAAAT	17640
ACTTGGAACA	CACACATTAT	AGGAATTAAC	GTTTTTGAAA	TTGAAAAATA	TCCAAATAAA	17700
TAAACTATAA	ACAACAAAAA	TAGAACTATG	TTATATTTCT	TATTCAAAAC	ATTCCTCCCT	17760
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CCAATATGCG	TGACAGGTAA	TAATGATAGC	CAAAAATAGC	AAGAGCAAGC	AAGACGATAA	17940
GAGCTCCTAC	TCCAAGCTG	ATGGCAAGGA	TAGGGGAGAG	AGACTGAACC	AAGAATATGC	18000
TCCCAATTAC	AAGGGCCATC	AGGATTGCAC	TATAAATAAA	CAATAAAACT	ATGGCGACFA	18060
TGCCATTTGA	ACGATTCAAC	AGGTCCGTAA	TGCTACTCCA	ATTGGTTGAC	AGATTTTTAA	18120
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GGTAAATCAT	CGAAATGATG	GGCAAGCCTA	GATATAGAGA	AAGACCAAGC	AAAGTCAGAA	18240
CTGGTAAAAA	GGACTGGACA	GCATATATAA	TCCAAAATTT	CACTTTCACA	TAACGAGCAA	18300
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AATGCAGGCT	GGTGATATTG	TTATTGACAA	CTGCTATAAA	GAGAGCTATA	AAAAACAAGG	18420
GTAACCAGTA	TGGAGGATGA	ATGTCTGGAA	CTATCTGAGA	ATCTCGGATT	TTGGAAATCA	18480

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GACCGATCAT CATGAGATAA GGAAGGAAAG CACTTGTAAG AAGCACTGTA ATCACGCCAG	18540
TCCCCTGTCC CAAGAGGGTG AGGTGGTAGC GTAAAACCAT GCGAAAAAT CCCTTTTGTAG	18600
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AACAGATGAT CATCAAGAGA CTGGAAAAAA TGTAAGAACT TAAGACTCTA GCGGAAACAT	19380
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## (2) INFORMATION FOR SEQ ID NO: 87:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 18436 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 87:

CCGAGCGTCG TTACAGACTT TATCAAGATT GGACGCAAGA AGAAATTCAA CATATAAAGG	60
AAAATATGGC ACAATCTCCA TGGCATACTC ATTACCATGT TGAGCCAAAA ACAGGACTTC	120
TCAACGACCC AAATGGCTTT TCTTACTTTG ATGGCAAGTG GATCCTCTTT TACCAGAATT	180
TTCTTTTGG TGCAGCCAC GGTTTAAAT CTTGGGCACA GCTAGAAAGT GATGATTTGA	240
TTCACTTTAA AGAACTGGA ATCAAAGTTT TACCAGATAC TCCATTAGAT AGCCACGGTG	300
CCTACTCTGG TTCTGCCATG CAATTTGGCG ATAACCTATT CCTATTTTAT ACAGGAAATG	360
TTGCGGATAA AAATGGATC CGTCACCCAT ACCAGATCGG TGCTTTGATG GACAAGGAGG	420

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GTAAGATTAC	AAAGATTGAC	AAGATCTTGA	TTGACCAGCC	AGCAGACTCT	ACTGACCACT	480
TCCGCGATCC	ACAAATTTTT	AACTTTCAGG	GTCAATATTA	TGCCATTGTC	GGCGGACAAG	540
ACTTGGAGAA	AAAAGGTTTC	GTTCGTCTCT	ACAAGGCTGT	CAATAACGAC	TACACAAACT	600
GGCAAGCAGT	TGGCGACCTT	GACTTTGCTA	ACGACCGTAC	TGCCTACATG	ATGGAATGTC	660
CTAATTTGGT	CTTTGTAGAG	GAACAACCTG	TCCTTCTCTA	CTGTCCACAA	GGATTGGATA	720
AGAAAGTTCT	AGACTACGAT	AATATCTTTC	CAAATATGTA	TAAGATCGGG	GCTTCCTTTG	780
ACCCATAAAA	TGCCAAAAATG	GTAGATGTGT	CTCAACTTCA	AAACATGGAT	TACGGTTTTCG	840
AAGCCTATGC	AACTCAAGCC	TTCAACGCTC	CTGATGGGCG	TGCTCTAGCA	GTTAGCTGGC	900
TTGGTTTGCC	AGATGTTTCT	TACCCATCTG	ACCGTTTTGA	CCACCAAGGA	ACCTTCTCTT	960
TGGTCAAGGA	ACTCACTATC	AAAGACGACA	AGCTCTACCA	GTATCCAGTC	GCTGCTATTA	1020
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GATGTCGCCA	AACTTGCAGG	CGTCAGTCTT	ACTACCGTTT	CTCGGGTTAT	CAATAAAAAA	1500
GGGTATCTAT	CTGAGAAAAC	CATCCAAAAA	GTCAATGAAG	CCATGCGAGA	ATTGGGCTAT	1560
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CTAGGAATCG	AAGACTACAA	TCGTGTGACA	GCGCCGATTA	TTTCCTTTGA	CCGAAACCTA	1860
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ACCTTGGTCA	AGACAGGTGC	CCAGTCTATC	ATCATGATTA	CAGGGAATGA	CAATTCTAAT	1980
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CGGGAAAAAC	CAGATGCCAT	TTTTGCTTCG	GATGATTGTA	CAGCTATTCT	GGTCATTAAA	2160
ATCGCTCAAG	AATTGGGCAT	TTCTGTCCCA	AAAGAGCTCA	AGGTCATCGG	CTATGATGGG	2220

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ACCTACTTTA TCGAAAATTA CTACCCTCAA TTGGCTACTA TCAAGCAACC TTTGGAAGAG	2280
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ACTGGTTACT TCTTACCAGT TACGCTATTA CCAGGAAAAA GTATTTAAAC ACAAGAAAAAC	2400
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CACGCGCATC	AAGGTTTTTC	GCTCTATCAG	AAATACTTTG	TTCTTTTGT	TCAAGTGTTT	17100
GTTCTTTACT	CGTCAAATTG	TCGTCTTAC	GGTCAAGGCT	AGTAGCTCTC	TCTGTCAAAC	17160
GACTTTCGAT	TTGTTTGAGT	TCTTGACGTT	CTGATTTGAA	TTGAGCGTCC	ACTTCTTCAC	17220
GGTATTTTCT	GGCTTCTCT	TTGGCCTCCA	ATAGTGCTTC	TTTTTTAAGA	GACTTGCTTT	17280
CACGTTTGGC	TTCAATTAACA	AGTAAATCCG	CTTCACGCTC	AGCTTGTCCT	CGTAAATTAG	17340
TTGCTTCTTG	TTGAGCATTT	AAAAGCATCA	ACTCTGCAGC	TTCTTGAGAT	GATTTTCATCT	17400
TAGCTGAGAT	GCTGACATAT	CCAATGACTA	AACCAATGAT	GACGGCAAAA	ACAGCAATCG	17460
CAAGCGACAT	GATTTCCATG	TTTTTACCTC	ATTTTATTGT	TATTCGGAAT	GACATACATT	17520
CTTTTACATT	CTACCATAAA	AAAGTGATTT	TCACAAACCT	AAAATAGAAT	ATGTTTTGAG	17580
GAATTTGGAA	CACATTTACC	AAAATAAACT	TGTTGTTTAG	AAATAGTAGT	TTAGTAGAGA	17640
CTTGAGAAAA	AGCCTACCTT	TCAATAGACT	TAGTAATGAT	CTTTAAAGGA	CAAGAAAGCC	17700
ACGCTATCTC	CATCCATCAT	ATAAATCAAG	CGATTTTCTG	CATCAATACG	CCGTGACCAG	17760
GCTCCTTGGT	AATCATATTT	GAGTGGTTCT	GGTTTACCTA	TTCTGTAAA	GGGATCACGT	17820
TGAATATCCT	TGATTAGTTT	ATTGATTCTT	TTTAACGTTT	TCTTATCCTG	ATTTTGCCAG	17880
TAGCAATAAT	CTGCCAGGC	ATCTTCTGTA	AACTTGAGCA	GCATTTCTTA	CTCCTCAATA	17940
ACATGGACCT	GAGTACTTCC	AGCACGAACT	TGAGCCATTC	CTCGCAAAAC	CTTATCAGAA	18000
AGTTCCTTAT	TTTGAGCAAT	TCTCAGGGTT	TCTTGATAC	TATCCCACTC	ACTCTTTGAA	18060
AGGACTACAA	TGTCCTCATC	TGGATTTTTA	TTGACCACCG	TCAAAGGCTC	AAATTCATCA	18120

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TTTACCTTCT TCATGTAGTC CTTTAAATGA TTTCGGAATG TTGAGTAAAG GACTGCTTCC	18190
ATAACCATAC CTCGTTTTC TAGCTTTTCCA CTATTATACA CGAAAAGAAA GAAATTGTCA	18240
GGAACCTTGT CAAGATTTTC TTTTCTATCT ATTTATACTC AATGAAAATC AAAGAGCAAA	18300
CTAGGAAACT AGCCGCAGGC TGTACTTGAG TACGGCAAGG CGACGTTGAC GCGATTTGAA	18360
TTTGATTTTC GAAGAGTATT ATTCGTAAAA AATCTCAAAA AGCCTACCTT TCGGTAGACT	18420
TAGTTTGTTC CTATTC	18436

## (2) INFORMATION FOR SEQ ID NO: 88:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 7001 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 88:

ACGTAGAAAA ACTATTTCTA TCACAGATAA TATCCCGTAT GTTGTGGAG GTATTGAAAT	60
AAACGTCCTA GGTATCTTTC TCAGTCTATG TGACTTACAA GGGAAAATC TTTCGAGAC	120
AGAAATTTTG AATGAAGATT ATCCTATTTT AGAAATCAAT TCCACCATT CCAATATGAT	180
AAAAACAGCT ATAGAGTACG TCCCTTTGGA AACAAAATTA CTTGGATTG GCTTATCAAT	240
ACCTGGACAT TATAACAAAG ACTCCGGAAG TATCATTACA AACAAACCCA TATGGGAATC	300
TTTAAATTTA TTAAATGTAA TTTAAAGATT CAATTTTCCT TTTATTGTAA AAAATAATAT	360
CGATTGTATG GCTATAGGAC AATACCTTTT TAATCCACAC AATACCCCG ATAACCTTAT	420
TTTCCTACAC GCTGGATTAG GTATTTACAC TTCCTTTTTC ACAAAGAAA AAATAGGAGC	480
CTCTAAAAAT CCTTATATCG GAGAAATTGG ACACACCATT GTCGAATTGA ATGGGCAATA	540
TTGTGAATGC GGAAAAAAG GTTGTTTACA AACATATATT TCGGATGCTT GGTTAATCAA	600
ACACGCCCAA TTATTATTTA AAAATTCCCA ACTAACTGTA CTAAAAAGCC TTGTAAAGAC	660
TGAAAAAGAC ATTCATTTAG ACACCCTTTT AACGGCTTAT AATTTAGGCG ACTCCGCTTT	720
ACGTCAACAA ATTGATAAAG GAGTCAATTT ATTAGCCACT TCTATTGCAA ATCTCCTCCT	780
CATCAATCCT GCTGATAAAA TCTATATCAA CAGTCAATTG CTTAATTATC AACCTTTCAC	840
TCATGAAGTC AGGGATAAAA TCCAAGACCA GCTCCACTTC GTTCCCTTTA CTCGTAATAT	900
AGAAATTGAA ATTTTACCTT ACAACAAACA TCGTGGAAAG ATAGGAGCTT GTGCATTAGC	960
TATCGTCGCT TTTTTCATAG AACATAGCAA TGTATTACAA GATATTATTT CACCTTAATA	1020
TATTAGAAAT CTATAGACCT GTTTAAATCA ACTATAACCT GTAGTAGATA TCTCGTATTT	1080

AGACAATATG AAAACAAGAC GACTTCCATA TAGGAAACCG CCTTCTCGCT ATGTTGAGTG	1140
ATTTATATTA AAATAACTTT TCTTCTAGCT GCATTTTATT ATTATAAAAA CATTTCATCAT	1200
AACCCCCAGA ACTTAAATAA CAATTTTAT TCAAGATACA TACTCCTAGA ATAAACTTTA	1260
TATGAAATTC TCATTTTGT TTTTACAATT CTCCTTAGTT AAATCTTGTT TAATATATGT	1320
TTTACATATA GTATTTAGCG CCACATAGTA CTGAACTCTC TCCAAAAACG GTTATTCCTC	1380
TTTGAATAGG GCGTTATCAC AAGAAAAGCA TCTCCACGTT TCAACTTCAT ATGGCTCAAA	1440
AACAATCAAT TGATGCTAAA ACCTGTACCT AGATGTTTCG GTTCATAAAA CCATGAAACT	1500
GTAAAAGTGG ATGAAATGA TAGCGATAGT CAAATCAAGA GGCATCATAA CTCTAAAAAG	1560
TCACAATATA TAAGTTCATC CTCGGAAAAA TATCATTCTA ATTGTTGAAA TGCCTACATG	1620
AAAAGAAACG TCAAATGCTC ATGAAACAAC GAATACAGGT ATCAAACTA TGACAAAACA	1680
AATCCCTAAA TTTACTAAAG ACGTGTCTCA ACTTTACACC TGTAATGGT TGTGTATATA	1740
TAAAGTTACA AAGATGTACG ACCACACTGT TGTAATCAT AGTGTTCGCG AATATATTAC	1800
TGATAGCATT TCTACAAATA CAAGTAAAGA GAGCGGATGA GATTCAAACG AAATATGTCA	1860
GTGCTTTGGC ATTCCTAGCC TTCATATCAT TTAAAGAATT CTATAGACAA AATTTTTTCC	1920
AATACAGACA CTCGTAACAA CTGCTTCATT TTTCTACCA CATATTTAGG AACAGGATAA	1980
GATACAAGAG TATTAATCCA TAGCTCAGTT CTATACCAAT CTAAGACAAA TAAGCTAAAA	2040
AAACGATTGA TAATAAGCAA ATAGATTCCA AATTTTCTCT ATCTGCTCAT TTTAATAAAC	2100
AATACTAGTG TAACTATCCT TCCAGTCAGA AGCTTGTCAG ATCACACCGA AAATCTTCT	2160
AAAATTTATC TCGTTAGGCA ATCAAGCAAA AACTCGACGA TAGTACAAAC ATTATCATAC	2220
AGGATTGACT TCCTAAATTA TATACTTTAG TAAGGTTTTT GGATAAGAAA AAAGGTTTCT	2280
TTTACATTTT TAAACATTCT TTTCTAAGAT GAAAAACAGA ATTTTTCGAT TGTGATTTAA	2340
AGCAACAAGA AGATTTTCAG TATCATCCTA TAGATACGAG CTAATTAAGA AAACTACAT	2400
TTTTGAATAT AAACACAAT AATATAAACT AAATTTTATA GGAGGAAGAC AATGGATTGG	2460
TACGATTATA TGATACAGGC ATCCAAACAA TCACAATTCA ACGCAAGCCA TTGGTTTCGC	2520
TATTTGCCAA AAGTTATTTT TGAAGACTAT TCTTATTTAA CAAACCAAGA TGTAGAAAAG	2580
TTGCTAGACT CCAAAGAACT AACCCTTTTT CAAAAATTA GCTTGAAGTA TGCCTTTCAA	2640
GAGCATACTC CAACTCATAA ATATGTGATT TCATTAAATA AACCTGCTAA GTTAACCAAT	2700
GTTCAAAAAT TGATGGAGAA ATACAAACAT GGATAAAATG AAACCGGTCT TCCAAGCCCT	2760
AAATAAGGAA TTAATTCAGG AAAATCTGAC TTAAACAATT ATCTGTGTCG GTGGTTATGT	2820

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CTTAGAATAT CATGGTTTAC GTGCCACACA AGATGTTGAT GCTTTTATGG CTCTATAATA	2880
TTTGTAGTGG GTAAATCCCC TATGGATATT ATGGAGCCTA TTTTGTGTGA GAAAAAAGT	2940
CCCATATGAC CTATAATGAA AAGCGACAAA ACAACTCATT AGAAAGAATC ATATGGAACA	3000
ATTACATTTT ATCACAAAAT TACTAGACAT TAAAGACCCT AATATCCAGA TTTTAGACAT	3060
CATCAATAAG GATACACACA AGGAAATCAT CGCCAACTG GACTACGACG CCCCATCTTG	3120
CCCTGAGTGC GGAAACCAAT TGAAGAAATA TGACTTTCOA AAACCGTCTA AGATCCCTTA	3180
CCTCGAAACA ACTGGTATGC CTTCTAGAAT TCTCCTTAGA AAACGCCGTT TCAAGTGCTA	3240
TCACTGTTCA AAAATGATGG TCGCTGAAAC TTCTATCGTC AAGAAGAATC ATCAAATTCC	3300
TCGTATTATC AACCAAAAAA TTGCGCAAAA GTTGATTGAG AAGATTTCTA TGACCGATAT	3360
TGCTCATCAG CTGGCCATTT CAACTTCAAC TGTCATTGCG AAGCTCAATG ATTCTCACTT	3420
TGAGCATGAT TTTTCGCGTC TTCCTGAGAT TATGTCCTGG GACGTTGAAA CAGTCCGGGG	3480
AGTGACTGTT TCAATCGGGA GATGGAGATG AGCTTTATTG CGCAAGATTT TGAAAAGCTC	3540
GATATCATCA CTGTTCTTGA AGGTAGAACA CAAGCTGTCA TCCGAGATCA CTTTCTTAAA	3600
TATGATAGAG CCGTCCGATG TCGCGTCAAA ATTATTACTA TGGATATGTT TAGTCCTTAC	3660
TATGACTTAG CTAGACAACT TTTCCCGTGT GCTAAAATCG TTCTTGATCG CTTTCACATT	3720
GTACAACATC TTAGCCGTGC TATGAGTCGT GTGCGTGTC AAATCATGAA TCAGTTTCAT	3780
CGAAAATCCC ATGAATACAA GGCTATCAAG CGCTACTGGA AACTCATTCA ACAGGATAGC	3840
CGTAAACTCA GCGATAAACA TTTTATCGC CCTACTTTTC GTATGCATTT AACCAATAAA	3900
GAGATTTTAG ACAAGCTTTT GAGCTATTCA CAAGACTTGA AACATCACTA TCAGCTCTAT	3960
CAACTCTTGC TGTTCACCTT TCAGAATAAG GAACCGGAGA AATTTTTCGA ACTTATCGAG	4020
GACAATCTTA AGCAGGTTCA TCCTATTTTT CAGACTGTCT TTA AACCTT CCTCAAAGAT	4080
AAAGAAAAGG TTATCAACGC CTTTCAACTA CACTATTCTA ATGCCAACT GGAAGCGACC	4140
AATAATCTCA TCAAACCTAT CAAGCGCAAT GCCTTTGGTT TTCGAACTT TGAAAACCTC	4200
AAAAACGGA TTTTATCGC TCTGAATATC AAAAAAGAAA GGACAAAATT TGTCCTTTCT	4260
CGAGCTTAGC TTTTTCCTT CCACTACAG TTGACAAAGA GCCGGAAAAA GGAACAGCCT	4320
TAGCTTTCTT TTCATTCTT TTTATTTCCC TCGTAGTAAA CGTGCTAGCT TCCACAAAAC	4380
AAACAGGATT CCCAGAAATG CCAGTACCAC TAGCCACGG TACAACCATT GAGAGGTTGC	4440
AACACGCGAT ACAGATTGTC CTTCTTTCGT AAAAGCAACC CTCGCACTG CAGCTGTTTG	4500
TGGATCTGAT TTTTGATAAA CAGCGACTCG TTCAAAATTC ACTAATAAGC GTTTATTAAA	4560
GGTAGGAATC GGATCGCAGG TTATCAAGGT CATGATATTT TTAGAGCTAA CCGATTCTAA	4620



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TTTTTCCCAT	TCCGACGGTA	AAATAATCTC	TGTGTCCATC	ATCTGATATT	CTACAATTTT	4680
CTGGCCATTA	TCATAATAAA	GAGCATCTCC	AACTTTTAGC	TGATCCAAAT	GGCGGAAAAA	4740
GACATGGCTT	GGCTCTGCAC	GGTGCCGAGC	AATCACTGAG	CGAATCCCTG	TACCATCCAG	4800
AGGCAGCGGT	GTACCATCCA	CATGAGCCAA	GCCCATCCCT	AAATGATGAT	AATCTGCTCC	4860
CAAATAAAACC	GGCTCCATGA	TTTCCAAACT	TGGAATAGAC	AAGTAACCAT	AGACTGCATC	4920
AGGGTCGTCA	GACACTTGGT	AATTGACCTC	ATATCCCTCC	GCCAAAAAAG	GATCTACAAT	4980
GCGATTTTGC	GAAGCCAAGC	GTTGATTGTA	GGCGAGAGAA	TGGTTCTGTT	GTTCTTGTTA	5040
CATTTCAAGT	GTCATGGATT	TCACAAATGT	AGCATGACCT	TTCACCTGTC	CAAGAGACTG	5100
CAACACCATC	TGTCCAAAAC	AATAAATAGG	AATCAAACAG	GCTACCAACA	TCAACAAGTA	5160
TCCCAATAAG	GCTCGTAGTT	TAGTCCTTGA	CATGACGCCC	CTCCAATTGC	TTTTCTAGTC	5220
CTTTGACAA	CCGTCGATTA	CGATACACGC	GATACAGCAA	GAGAAGGATG	ACCGCCATCG	5280
CTCCTAGTAA	TAACCACAAC	CAGAAATGCC	CACGCTCTCT	CACCGCTCGA	TTCCGCTCTG	5340
CAATTGGTGC	CGTATACGGA	ATCCGCTTCC	CACGTACCAA	CAGACGATGA	CTGTTAATCA	5400
TATACGGTGT	ACAAGTCAAC	AAGGTCGCAT	AATCTTCCCC	ATGTTGAATC	AAGACAGGCT	5460
CAAAGTCATT	CGGCTCCACC	GTCACTATCT	GATCCACTTG	GTAGGCCAAC	ACCTGATCTA	5520
AAACGTGAAG	ATAAAAGATA	TCCCCTTTTT	TCATCTTATC	CAATTGACTG	AACAATTCTG	5580
CCGTTGGCAA	TCCTCTGTGA	GCAGTGATCA	CTGTATGGGT	ATTTTCACCT	CCAACAGGCA	5640
GCGAAGCCCC	TTCTAACAGC	CCTGCCCCCT	TCTGAAGAAT	GTCCTCACTC	GTTCCGACAT	5700
ACATCGGAAT	TTCTGATCA	ATCGCAGGAA	TTTCCACATA	GCCAATCCGC	TCATGGACCT	5760
TTAGCATATT	GGCATATTCT	GAGACGCCTT	TCTTTTTCTC	TTGCTCTGTA	AAAGGATCAA	5820
GAATTTCAGA	TGGTTTCAAG	GTCGCATTGA	AGGCTTGAGC	CAAGCGCCAA	CGCTCCTCAA	5880
GTTCTGCCTT	ATCCATCTGG	GAAACCGTCT	CATCAAACCT	TTTAATAACC	TCGTTTGACT	5940
CAATACGATA	ATAATAACGA	GACACCAATG	GATATATCGC	AACGGCGAAT	CCTACTAAGA	6000
AAATCAGAAG	AAGGATCAGC	GGATGTTTCT	TCTTTTTTGT	GCCTTTTTTT	CGTGAACGTC	6060
TACTGTTGTC	CATCCTCCAC	CTTCACTTCC	TTCTTGCTG	CTTTCAGCGC	CTTCAAAGCC	6120
TTTTCCGGTT	GTTTTTCTT	CTTGCGCAAG	CGTCGAATAA	TCCATAAAAG	AATCACAATC	6180
AAACCAACTG	CCACATAAAA	CAGGTAGCGA	TAGAGATGAC	TGAGTTTGTT	TGCTGCAATA	6240
AATTCTTCCT	CAACCTCTGC	TACGTACGGT	ATCCGATGCC	CCCGAACCAG	TAGACGATGG	6300
GTATTGATCA	TGTATGGCGT	ACAAGTCAGC	AAGGTCACAT	AATCATGACC	TGGTACAATC	6360

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AATAAATCAT CAAAGTTCGT CGGCTCAATC ACCTTTACTT GATCCACTTG ATAGGCCATC	6420
ACTTCCTTGA TATTGTGCAC ATAAAACTTA TCCCAACTT TAAGTTTGGT CAAATCCGTA	6480
AACATCTTAG CTGTTGGCAA ACCTGTATGT GCCGTAATCA CCGCATGGGT CGAATTGCCT	6540
CCGATCGGCA GAGAAGTTC CTCTAGATGC CCAGCCCCCTT GCTGCAATAC CTCTTCAGCA	6600
GTACCAGCAT AAACCGGCAA ATCCACGTCA ATAACGGGGA TTTCCACATG CCCCATCCGC	6660
TCATGGATT CTAACATACG TGCATACTCT GCTCGCCCTT TTTCTTCAT TTCTTCGAC	6720
CAAGGATCGC CACTCACTAC ATTATTCAAA GAGTCATTGA AGGCTTGTGC CAATTCATT	6780
CGTTCATCAA TGTGAGCCTC ATCCAACGTT GCTTTTTCCT TATCAAAGTC AGCAATTTGT	6840
TGATTTGATT CCACTCGATA ATACAAGCGA GACACCAGCG GATACGCCAT TACCGCCATT	6900
CCAATGAAAA ATACCACTCC TAATAGGAGA TTATTTCTGTT TTTGCTTTT TGTMTTACC	6960
ATTTTATCA GCATCCCTTT ATCTTCAAAC TTCAGGGTAT C	7001

(2) INFORMATION FOR SEQ ID NO: 89:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 10411 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 89:

GAGGGAGCTT AAGAAGTTAC CACCGTCCTC TAGCGCCTTA TCCGCATCAA AGTTAAGGTT	60
GATATTTTAA AACTGTGCGC CAGCTTGTGA TACGATGCTT TGTTTAAGGT CATTTAGGTT	120
TTTAGTGAAA TCTGCATTGC TGAGGATATC ACTCTTTGAG AGATTCAAGG CAAAATTGAT	180
GATGATATTG ATCTGGTTTC CTGTTATGAC CTGATCAAGT TTGTAATTTT TTAAGGTATC	240
TTCAACAATC TTGCGGATAT CTCTTCTGT CAGATTTCCC TTAATTTCTT TAGCTTTGGC	300
GAGTCCTGAC TTGATATCAG CTAGGGCAAC GTTTAATTTA TTAGCATCAT AGCCTGATTT	360
GTCTTGTTT TCAGCATTGA TATCTGACAA AGCTTTTAGC TCTTCTTGAG CCAAATCTTT	420
ATTAGCTTGT GGCACCTTGG CTCCATTAGC CTCTAGCGAA TAGTAAATCC CTGCTAAAGC	480
ACTTTCTCCT GTAAGTGGA TAGGGGCTGC TACAGTGATT TTGGCATGTT CCATACCCAG	540
CGTTACTGCT GCGTTTCGGT ACATATCCTG AGTCACCTTA GTGATATTTT CTGGTGTTC	600
AATCTTGACC TCAAGTGGCG ATTTGTCAAC TAGCTTTTGA ATCTTGGCTG ATGAATACAA	660
CTGTAAGCTA GAGTCATTGG CCACATTCAT GATTTTAGAA TAAACATCAG GTGTCATGGT	720
CTTGAGTTCT TTGGTATCTG TTGAGGCATT GTAGCCCACT TTTTAAAGAG TTTGATTTT	780

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TTGGTCTTCA GATAGGGAGG AACCTAGGAC ATATTAGGCT TGGACATAGG TTTCATCGAT	840
AACTTTTGA ACATCTGTTG CTGCATGGAC GCTATTCATA GCTGTTACTG CCCACAAGAT	900
CGCAGCGCTA GTCAGAAAGA GTTCTTTCT CATAGGGAAT TTCCTCCTTT ACTTCTTTAG	960
AGTAATATAT CTATCTTAAA GAAACTTAT AACAAAAACA CCTGGTCTAG CCAGATGTTG	1020
AAAAGAGAGT GAAACATTG ATGATGTAAA GGTAAAGTCG TACCTGTCTA GAATAATAAT	1080
AGTTTCCTCC ATTTACATAG AGTTCAGCAC CGTGAAAAAT GGAAATGGGG TGAATATAAC	1140
TATAAGTCTT TCCAGTCCTA TTACCAAGCA AGGGGGCAAC AGTCTCACGA GAGTACTGTT	1200
TGGCTAGAGC CAGGGTATTT TCCTTGCCAT TTGGGGCGAT AAAATCGATA TAGGCAGGTC	1260
CAAAATTATA GGCTTGAACA GCTGTCCAGA TATCTACCCC CTTCTTCTGC GCCAGATAGA	1320
GATTGCCTGT CAGAGTTTGA ATGCCTTGCC GAATGCTAGA GGCATTATCA TTGATGGTGT	1380
TGGTGGAACC ACTTGCAGAC TCACTAGACT GCATAACATC GCCTTCTTTT CTTTTGTTT	1440
CAGTATAAAT CATAGCAAGC ACAAGCTCTT CGTTTGCTGG GGTGTCTTGT TCACTCAATA	1500
TTTCTCGCAC CATGGGTGTA TAGGTCAATG CTTGTTTGAC ATCTTGATGA ACGCGGTAAG	1560
CTTTATAGCC AGCAAAAAGG AAGACTGCTA GTACAAGCAC TCTTCGAATT CGTTTAAACA	1620
TTATTTACTT TGGATATCCT CGATATTTT GATTAAGATA GAGTAGGTTT CATTTTCGTT	1680
TTGGATAAAC TCAACAGACT CGGCGTCTTG ATAGACGTTA TTGGGAACGA TGAGCTCAAT	1740
TCCATTTGAT AAGGAGAGTT TTTGGTTTTT AAATTTCTTT AATTGGCGAC TGGCATCAAT	1800
TTCATCAAAT TGAACAGGTT CTGGTACGGC TTCTTTGACT TGGTCAATAA AGCTCAAACG	1860
AGCCGTCAGA TTGTTGTCAA AAAGGTCATT AGCCAATTTT TCAGGTGACA ATTCATTGCT	1920
TTCTTCTAGG TTGTTGAAAA TAGCTGATTT GACCTTGGAT TGAAATTGAA AATCATCTGT	1980
GTAAAAAGAT TTAGCAATTC TCTGGGCTGT TTTTCCAGT TCCTTGATAG ATTTTTTAGG	2040
AGAAATCTTA GGAGCGACAG CAAGAAGATT ATCTGAAAAA TAGTTCAAAA AAGTCCCGTT	2100
GTACTTGATT CGTTTTTCAA TCAGGTGATA CTTGCTACTC TGAAGATTGA CCACCAAGGC	2160
CTCATCAGCT CCTGTTCCAA ATCCAGGCAG GTTATTCTGA GTTAGCTTGA TTGGATTATC	2220
AACTTCTCCT CCGAGGTGGG TCAAGGTCTC CCGCAGGGCA ATTGCAAGA AAGCGAAATG	2280
TTCTACACCT TCTTTAGAAA ATTGCACAAA AATCAAGTCA TTGGTCTTGA GATTTTCAGA	2340
AATGCTAAAC TCCTCTTCC AGAGATTAGC CAGCGTACT GATGTCTCCA ACAAATCGTC	2400
TGTAATATGA TTGAAGAAGG GATTTTCTTC TTCGAAAATC CCAGTCTTGG CTTCATCTGA	2460
ATACACATGT TCAATTTTTT TACGCAGGTA TTCTTCGATT TTTGGAGTAA TATTGAGAAA	2520

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CTTATCTGCT	AAGAACACTT	CGGTATCATC	CGGACTGAAC	TGGTGAATAA	TGGCTTTCTT	2580
AATATAAATG	TCCATAAAAG	TTTTAGTCCT	CGTATAATGG	GAAGGCATCT	GTCAATTCTT	2640
TGACTGCACT	TCTCACTTCT	TCTAATACAG	CCTCATTTTC	TGAATTCTTA	AGGGTTTTAA	2700
TGATGAGTTC	AGCCACTTTG	CGACTTTCTT	CTTCACCAAA	TCCACGTGCA	GTAATGGCTG	2760
CTGCTCCGAT	ACGAATCCCA	CTTGTCTTGA	ATGGTGACAA	GCTTTTCGTAA	GGGATTGAGT	2820
TTTTATTAA	GGTAATATTG	ACTTCATCCA	ACAAGTTTTG	AGCAACTTTG	CCGTTTTCTA	2880
CAACTTTAGT	CACATCAACA	AGGAAGAGAT	GGTTTTCACT	TCCACCTGAA	ATAATACGGA	2940
AATCAGGGTC	TTGCAAGAAG	ACATCTGCCA	TAGCCTTGCT	GTTCTTAATT	ACATTGGCAG	3000
CATATTCCTT	GAAGGCTGGA	TCCAAAACCT	CTTTGAAGGA	AACTGCCTTA	GCCGCCACAA	3060
CATGCTCTAA	AGGACCGCCC	TGAATACCTG	GGAAAATAGC	TGAATTGATT	TTTTTAGCAA	3120
GTTCTTCGTC	ATTGGTCAAA	ATCAAACCAC	CACGAGGTCC	ACGAAGGGTT	TTGTGGGTCG	3180
TTGTTGTTGT	GATATGAGCG	TATGGAAGTG	GGCTTGGATG	AAGGCCAGCC	GCAACCAAGC	3240
CAGCGATATG	GGCCATGTCC	ACCATGAGCT	TCGCACCGAC	AGCATCTGCG	ATTTACGGA	3300
ATTTTGAAAA	ATCGATAATT	TGAGAATAGG	CTGAAGCACC	AGCTACAATC	AGTTTTGGTT	3360
TTACTTCTTG	GGCTTGTTC	AAGATAGCAT	CAAAGTCTAA	GAGTTCCGTT	TTAGGATCAA	3420
CACTATAAGA	AACAAAGTTG	TAGGTTTGAC	CAGAGAAGCT	AACAGGAGCC	CCATGAGTCA	3480
AATGACCACC	TGATGCCAAA	TCCATTCCCA	TAACCGTATC	ACCTGGCTCA	ATCAAGGACA	3540
TGTAAGCCGC	ACAGTTAGCT	TGGCTTCCTG	AATGTGGTTG	AACATTGGCA	AATTTAGCAC	3600
CGAAAATTTT	TTTTGCGCGT	TCAATAGCAA	GAGTCTCTAC	AACGTCTACT	ACATCAGTTC	3660
CACCATAATA	ACGGCGTCCT	GGGTAACCTT	CGGCATATTT	ATTTGTCAAG	ATAGACCCTT	3720
GAGCTGCCAT	AACAGCCTTG	GAAACTACGT	TTTCCGAAGC	AATTAACCTG	ATATTATTTT	3780
GTTGGCGTTC	TTCTTCTTTG	GCAATAGCAT	TCCAGAGATC	AGCATCATAT	GCTTTAAAAT	3840
CATCTTTGTC	AAAAATCATA	GGTCTTCTCC	TTTATTGTGT	GACTAGTCCA	TTAGTTTGAT	3900
TTTACAATAA	GAAAATCAAA	CTAACAGATG	CGAATAAACC	GTTTCTGCAT	TTTATCACAA	3960
GTATAGCCAA	CTTTTTCATA	AAATGCATGA	GCACCCAGAC	GATGATTGGC	AGAATTTAAG	4020
CGGATAAACC	CATAACCACA	TCTTTTTGCT	TCTTCTTCCA	ACCCTTGTAG	TAAACTTTTA	4080
CCAATACCTT	GACCTTGCGC	TTGAGGTGAA	ACTGCTAAAG	CTAAGATATT	AAATCCTGCT	4140
TTGGAATAGA	GTGATTGCTA	AACCTCAGCG	TGGACATATC	CAAGTAAGAC	ATGATTAGCT	4200
GCATCCTCAT	AGCCAAGTAG	GAAATGATGG	GAATCCTGAG	ACAGTCTAGC	TAGTTGGCTA	4260
GCCGTTTCCT	CTGGACTAAA	AGTATAACCC	AAAGCCTCTT	GGTTGATGTC	ACATATAGCT	4320

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TTCACATCAG TTTCTCTTAA ATCTCTTAGC ATCTCATTCC TCCTCAAAAG AAATCTTTGG	4380
CAACCGAGCA AGAATATCTT CTCGCTTAAT GGCCCTTGA CGTAAGATTT TCACCTTGTC	4440
TCCCACAAA TTCAAAATAG TTGAATCCTG TCCAGTTAGA AAAGCATCGT CTTCCAGACC	4500
CAGAACCTCT TGGTCAAAAT CCTCTAGAAT TTGATTAAAG GTCACCTCCAC TCGCCTGACC	4560
TGAGATATTG GCAGACGGCC CAATCAAGGG ACCTGTCTCT CGAATCAAAT CAAGGGTAAT	4620
GGGATGACTA GGCATCCGAA ATCCAACAGT TGCAAGGCCA GAATTGACCC AATAGGGAAC	4680
TCGGTCATTA GCTTCGAGAA TAATGGTCAA GGGACCTGGT AAAAAGATCT CTACAAGTTT	4740
TTGAAGATAA GTTGGCTGAT TCTTTGAAAA GTACAAGATG TCCTCTAAAG AGGCAACATT	4800
GAGATTGAGC GCCTTGCTC TACGTCGACG TTTAAGCTGG TAAACATGGT CAACTGCTTT	4860
TTCGTCTAGC GCCTTAGCAA AGAGACCGTA AACTGTCTCT GTAGGCAAAA CGACAGCTCC	4920
ACCATTTTCC AACTCTTGTC TAATCCTGTC CATCATCAAC GACAACCATC CTATCTTGAC	4980
CAAATTGGTC CTTGAGTGTT CGTACTCGCT TTTCAGGAAG ATGTTTCCTA AAAAGTTCAG	5040
GAACACTTTG ACCTTGCTTG TATCCAATTT CAAGGTAAAT CTTACCACCA TCTTTGAGAT	5100
AGTCTTTTGC ATCTTCCGCA ATTCTACGGT AAATAGCTAG GCCATCCTCA TCTGCAAAGA	5160
GAGCTAGATG AGGCTCCGAA TACAAGACAT TCAAGCCTAC CTCTGACTCA TCTTCACGAG	5220
AGATATAGGG TGGATTGGAA ACAATTATAT CATATTTTTC AGAAATTTCT GTAAAACACT	5280
CAGATTTTTT TAAAAATATT TGAAGATTTT GATTTTTAGC ATTTTCGCTA GCTACATCTA	5340
AAGCATCTTG GGAAATATCT GCTGCCGTCA CTGACCAATC TGGTCTGTTT TTTGCTAGAG	5400
CGAGAGCAAT AGCTCCACTA CCTGTTCCGA TATCTAGGAC CATAAGATTT TTCACAGGAT	5460
TTTCAGCCAG GATAAGCTCC ACCAACTCCT CTGTTTCTGG ACGAGGAATC AAAACCCGTT	5520
CATCCACCTT TAAATGCATT CCATAAAAAT CTGCCTGTCC AATGATGTAC TGAGCTGGCT	5580
TGTGAGCTGC TAGTTGCTGG TAAATATCTT CTACAAATTG TTTTCTTCC TCTGTTGTCA	5640
CCTCCTGCTG GAGGGCAAAA ATAAAGTCTG TAAAGATAG ATTTTTCAGA CTACGATAGA	5700
CAAAAGAGAG GCTTTCGGCT TCCTCTCCTT GTCTTATCAA CTCTTCTTCA AAATTTGAAA	5760
ATAATTGAGC TAATTTCAAT ATTTGTTTAA TTCTTCTAGT TTTTGTGTTT GGTCAATAAG	5820
CACCAAGGCA TCCACAACCT CGTCCAATTT ACCAGACAAA ATCGTATCTA GTTTTGGAG	5880
GGTCAAGCCG ATACGGTGGT CTGTGACACG GTTTTGTGGG AAGTTATAAG TTCGGATCCG	5940
TTCTGAACGG TCACCAGTAC CGATTGTGCA CTTACGCTCA GCGTCTGCT CATCTTGAGC	6000
AATCTGAGCA AAGTGGTCAG CAACACGGGC ACGGATGAT TTCATGGCCT TCTCACGGTT	6060

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CTTCTGCTGG	GTACGTTCTT	CCTGCATCTC	AACCTTGATA	TTGGTTGGCA	AGTGAACGAT	6120
ACGAACGGCA	GTCGCAACCT	TATTGACGTT	CTGTCCACCA	GCACCAGAGG	CGTGATAGAT	6180
GTCGACACGA	AGGTCTTTTG	GATCAATGTC	GTATTCAACC	TCTTCAACTT	CTGGCATAAC	6240
AAGAACTGTC	GCTGTGGAAG	TATGAACACG	GCCTTGGCTT	TCTGTCACAG	GAACACGTTG	6300
CACACGGTGG	GCACCTGATT	CATACTTAAG	CTTAGAGTAT	ACAGACTGAC	CTGAAACCAT	6360
AGCAACCACT	TCTTTAAAAC	CACCGACACC	ATTCATAGAG	GCTTCCATGA	CTTCAAAGCG	6420
CCAACCTTGG	GCTTCCGCAT	ACTTTTGGTA	CATAGTTAGC	AAATCTCCAG	CGAAAAGTGC	6480
CGCTTCGTCT	CCACCAGCTG	CTCCACGGAT	TTCAAGGATG	ATATTCTTGT	CATCGTTTGG	6540
ATCCTTTGGA	AGGAGCAAAA	TTTTCAGTTT	TTCTTCATAT	TCTTCTTTTT	CAGCCTTGCC	6600
ATCTTTGAGT	TCTTGCTTGG	CCAATTCTTC	CAAGTCCGCA	TCTCCGCCTG	ATTCCTTAAT	6660
CATCTCTTCG	GCATCGACGA	TATTTTGAAG	GACTTGTTTA	TACTCACGGT	AGGCTATTAC	6720
GGTGTACGA	TTGGAAGCTT	CTTCTTTTGA	AAGCTCCATA	AAACGCTTGG	TGTCTGAAAC	6780
GACATCAGGG	TCACTCAGCA	ATTCTCCTAA	TTCTTCATAA	CGGTCTTCTA	CAACTTGTAG	6840
TTGATCATAG	ATGTTCAATT	TTTCTCCTTA	TTTCTCAATT	GTAAATCAT	AGATTGCTAC	6900
TACTTCATTG	TCGGATATTT	CCCCAGTTTC	TTTAAATCCA	TAACTGAGGT	AACAAAATCT	6960
TGCTGTGTTA	TTTTCTGGTT	CATATGACAA	CCAAAGTTTA	TTGCTTAAAC	CTGCTGGCGC	7020
TGTTCGAACA	TAGTCTAGTA	CTTTATCCAT	AATTGGTTTA	AAATATCCTT	GATTTTGAAA	7080
ATTCTTATCA	ATCATAAAAC	GAAATAGTAA	ATAATTTCCA	CTACTAATTC	CGATCTTTTT	7140
ATCATAAGCT	ATCATCACAA	AACCTATAAT	TGCATCATTA	TCATAAACTG	CCAATGGAGC	7200
TACAAAATCT	CCATTTTATG	TGTAGACGTA	TGCTTCAGCT	AAACTAATTG	CGTTGGTTGC	7260
AATGAATTGT	TTTTGATATT	CCTTGACATC	CAAATTTAAA	ACATCAAAAT	AATTTTCCAT	7320
TGTAACATCT	CTTAGTTCAA	TTGTCATAGT	TTTGCTCCTT	GTTAGAGGTT	ATCATTGGCG	7380
CAAAATAATG	TTTACGGCAA	ACTGAGATAT	AGGTTTCGTT	ACCACCAATC	TGGATCTGTT	7440
CTCCATCGTA	AACGGGCAGT	CCATCCTGTG	TTGCAACAC	CATGGTCGCC	TTTTTCTTGC	7500
AATACTGACA	GATGGTCTTG	ATTTCTGCAA	TCTTGTCTGC	TAAAAGCAAG	AGATATTTGG	7560
AACCTTCGAA	CAATTCATTG	CGAAAGTCAT	TTTTCAAGCC	AAAAGCCATG	ACGGGTATGT	7620
CTAACTCGTC	CACAACACGA	GCTAGGTCGT	AAACATGGTG	GCGTTTGAGA	AACTGGGCTT	7680
CATCGACCAA	AACACAGTAA	GGTTTTTCTG	GTAGGTCCTG	GATATAGCCA	AAGATATCCG	7740
TTGTTTCCTC	AATCGCAAGG	GCAGGGCGTT	TCATGCCAAT	TCGACTCGAC	ACATAGCCAA	7800
CGCCGTCACG	CGTATCCAGA	GCCGAGGTCA	TAATCACAAAC	ACCTTTTCCT	TGCTCCTCGT	7860

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AGTTATAGGC CACTTTGAGA ATCTCAATCG TTTTACCAGA GTTCATGGTC CCATAACGAT	7920
AGTACAACTG TGCCATGTTT CTGCTTCAC GTCCATTCTT AAATTTTTCG TACATTCTAG	7980
TATATCATAA TTTTCTTAAG CTMTAAACGG CAAAATGTGG TAAAATAGAA GAAATCAAAA	8040
ACTAGTGGAG GAAGCTATTA TGCCATTGTG ACGCATCGAT TTATTTGAAG GACGCACGCT	8100
CGAGCAAAAG AAAGCTCTTG CTAAGGAAGT AACGGAAGCA GTTGTCGCCA ACGCTGGAGC	8160
CCCTCAATCT GCTGTCCATG TCATCATCAA CGACATGCCA GAAGGAACTT ACTTCCCACA	8220
AGGGGAAATG CGTACTAAAT AAGCTAGCTT AAGCAGAATT GCTTAGGCTT TTTCAATCTC	8280
CAAGTAGCAT TCATTGAAGA AATATCCTAA ATTTGTTACA ATTTGAAAAG AAAGCTGGAG	8340
AATTTCCAAG AAAAGAGCTA TTAATTAAG GAAACATTAT GATTACACGT GAATTTGATA	8400
CCATCGCTGC TATCTCTACT CCACTAGGTG AAGGGGCTAT TGGTATTGTC CGCCTGAGCG	8460
GAACAGACAG TTTTGCTATT GCGCAAAAGA TTTTAAAGG AAAAGACTTG AACAAGGTTG	8520
CCAGCCACAC TCTCAACTAC GGTCACATTA TTGATCCTCT GACTGGTAAA GTCATGGACG	8580
AGGTTATGGT TGGGGCTATG AAGTCTCCAA AGACCTTCAC TCGTGAGGAT ATTATCGAGA	8640
TTAACACCCA CGGTGGGATT GCGGTGACCA ATGAAATTCT CCAGCTAGCT ATTCGTGAAG	8700
GGGCTCGGTT GGCAGAACCT GGTGAATTTA CCAAACGTGC TTTTAAAC GGTGCGTAG	8760
ACTTGACACA GGCAGAGGCT GTGATGGATA TCATCCGTGC CAAGACTGAC AAGGCCATGA	8820
ACATTGCGGT CAAACAATTA GACGGCTCCC TTTCTGACCT CATTAAACAT ACCCGTCAAG	8880
AAATCCTCAA TACACTTGCC CAAGTTGAGG TCAATATCGA CTATCCTGAG TATGACGATG	8940
TTGAGGAAGC CACTACTGCT GTTGTCCGAG AGAAGACAAT GGAGTTTGAG CAATTACTAA	9000
CCAACTCCT TAGGACAGCA CGTCGTGGTA AAATCCTTCG TGAAGGAAT TCAACGGCTA	9060
TCATTGGACG TCCCAACGTT GGGAAATCAA GCCTTCTCAA CAACCTCTTG CGTGAGGACA	9120
AGGCTATCGT AACAGATATC GCTGGGACAA CACGAGATGT CATCGAAGAG TACGTCAACA	9180
TCAATGGTGT ACCTCTCAA TTGATTGATA CAGCCGTAT TCGTGAAACG GATGATATCG	9240
TTGAACAAAT TGGAGTTGAG CGTTCGAAAA AAGCTCTTAA GGAAGCTGAC CTAGTTCTGC	9300
TAGTACTAAA CGTAGTGAA CCACTAACCG CCAAGATCG CCAACTCCTA GAAATCAGTC	9360
AGGAGACTAA TCGCATTATT CTCTTAACA AAAGTACCT GCCTGAAACG ATTGAACTT	9420
CGGAACTACC TGAAGATGTC ATCCGCATTT CAGTTCTTAA AAATCAAAAC ATCGATAAAA	9480
TCGAAGAGAG AATCAACAAC CTCTTCTTTG AAAATGCTGG TTTGGTTGAG CAAGATGCTA	9540
CCTACTTGTC AAACGCCCGT CACATTTCTT TGATTGAGAA GGCCGTTGAA AGCCTACAAG	9600

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CTGTTAACCA AGGTCTTGAA CTAGGGATGC CAGTTGACTT GCTTCAAGTT GACTTGACCC	9660
GTACTTGGGA AATTCTAGGA GAAATCACTG GAGATGCTGC TCCAGATGAA CTCATCACCC	9720
AACTCTTTAG CCAATTCTGT TTAGGAAAAT AAGAAAAATC CATGATCCTT CATTTCGGTCA	9780
TGGATTTTAG GTTCTATAAT ATTTGTAGTG GGTAAATCCA CTATAGATAT TATGGAGCCT	9840
ATTTTATTGT AGAAAAAAG TCCCATATGA CCTATAATGA AAAGCGACAA AACAACTCAT	9900
TAGAAAGAAT CATATGGAAC AATTACATTT TATCACAAAA TTAGTAGACA TTAAAGACCC	9960
TAATATCCAG ATTTTAGACA TCATCAATAA GGATACACAC AAGGAAATCA TCGCCAAACT	10020
GGACTACGAC GCCCCATCTT GCCCTGAGTG CGGAAACCAA TTGAAGAAAT ATGACTTTCA	10080
AAAAACCTTC TAAAATTCCT TATCTTGAAA CGACTGGTAT GCCCACTAGA ATTCTCCTTA	10140
GAAAGCGTCG ATTCAAGTGC TATCACTGTT CAAAAATGAT GGTGCTGAA ACTTCTATCG	10200
TCAAGAAGAA TCACCAAATC CCTCGTATCA TCAACCAAAA GATTGCTCAA AAGTTAATTG	10260
AAAAGATTTC TATGACTGAT ATTGCCCATC AGCTTTCCAT CTCAACTTCA ACTGTTATTC	10320
GTAAGCTCAA TGACTTTCAC TTTAAACATG ATTTTCTTG TCTTCCTGAG ATTATGTCTT	10380
GGGATGAGTA TGCTTTTACA AAAGGGAAGA T	10411

(2) INFORMATION FOR SEQ ID NO: 90:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2393 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 90:

GTTTTGGGTT CTGGAAATTA TCAGATGGTT GGAAAAGCCG TCCACATCAA GATAGTGTTT	60
GGAGATTTAA GTTTAAATTG AAGAACTAA CACAGAGGAA ATGGAGTATA GACCTAACAA	120
GACGTATTGA GCAACTGAAT TTGTCTATTC GAGGATGGAT AACTATTGC TCATTGGGAA	180
ATATGAAAAG TATAGTCGCC AGCATAGATG AGCGCTTGCG TACTCGCCTA CGAGTGATT	240
TCTGGAAGCA ATGGAAGAAG AAATCGAGAC GATTATGGGG ATTGCTTAAG TTAGGAGTTC	300
CTAAATGGAT AGCAGATAAG GTATCTGGCT GGGGCGACCA TTATCAATTA GTAGCTCAGA	360
AGTCGGTACT TAAACGTGCT ATATCAAAAC CAGTCCTGGA AAAACGTGGA CTGGTTTCGT	420
GTTCGATTA TTACCTTGAA CGACATGCGT TAAAGTTAG TTGAACCGCC GTATGCCAAA	480
CGGCACGTAC GGTGGTGTGA GAGGGGCTAG AGATTATCCC CTAATCGATT AACTCCCCTG	540
AAATTTATTT TAATTATGCA AATTTCACGT ATTTTGTATG CTGAGACGAC GATCCTGGGA	600



715

ACTTTTCAGA TATTTTTTTG ACTATCTAAA TCTATCATTA GAAAAGCTTA GAGCGCCAAA	660
GGATTGAGC GTTTTTCTGA TTTTAAAGAC TTTTCCAGT CTCTTTTTCG ATTGAAGATG	720
TAATTATTCT ACTAACTAAC TAACCTCTTA GTACTAGCCA ACAACGATAA TCATAATTCC	780
TCCTAAAATT AGGAATAATA AAGGCAATAG TTTTGTGTTT TTCATGTAAA AAACCTCACT	840
TTTGTGTTCT GCTATTTTAT GCTAAAAATAT TAAAAATCAA ATTTAATTCC AAAGTTTGTA	900
ACTAAAGGGG GAGCGCTACA TGTCTAATTC ATTTGTCAAG TTGTTAGTCT CTCAATTATT	960
TGCAAATTTA GCAGATATTT TCTTTAGAGT AACAATCATT GCTAACATAT ACATTATTTT	1020
AAAATCAGTA ATTGCCACAT CACTAGTTCC TATCTTAATA GGAATATCCT CTTTTGTTGC	1080
GAGTCTTTTA GTTCCGTTGG TTAATAAAG GTTAGCGCTA AATAGGGTTT TATCTTTATC	1140
TCAATTTGGA AAGACTATAT TATTGGCGAT ACTGGTAGGA ATGTTTACCG TAATGCAATC	1200
CGTAGCGCCT TTGGTGACCT ATCTATTTGT TGTGCAATT TCCATACTAG ATGGTTTTCG	1260
AGCACCCGTT TCCTATGCTA TTGTGCCACG CTATGCGACC GATTTGGGTA AGGCTAATTC	1320
AGCCTTATCA ATGACTGGTG AAGCTGTTCA ATTGATAGGT TGGGGATTAG GTGGACTCTT	1380
GTTTGCAACA ATTGGTCTGT TACCTACCAC GTGTATCAAT TTAGTCTTGT ATATCATTTT	1440
TAGCTTTCTG ATGTTATTTT TCCCTAACGC TGAAGTGGAG GTGTTAGAGT CAGAAACTAA	1500
TCTTGAAATT TTGCTCAAAG GTTGGAAGTT AGTTGCTAGA AATCCTAGAT TAAGACTTTT	1560
TGTATCAGCA AATTTATTGG AAATTTTTTC AAATACGATT TGGGTTTCTT CCATTATACT	1620
TGTTTTTGTA ACGGAGTTAT TAAATAAAAC GGAAAGTTAC TGGGGATATT CTAATACAGC	1680
ATACTCTATT GGTATTATAA TTAGTGGCTT AATTGCTTTT AGGCTATCTG AAAAGTTCCT	1740
TGCTGCTAAA TGGGAACCCC AATTATTCAC CCCAAATCTA AAAACCATCC AGAATCCTTG	1800
CCTTAGCTTA GATCCTGGAT GGTTCCTTTT TTCACCCAAT GGGTGTGTTT TACTAGACAA	1860
AAAAGAGTTT CCCCTTTATG GTATAAGTGT AGAAAAAAC ACAAAAAGAA AGGAAACTCA	1920
CATGAACAGT TTACCAAATC ATCACTTCCA AAACAAGTCT TTTTACCAAC TATCTTTTGA	1980
TGGAGGTCAT TTAACCCAGT ATGGTGGTCT TATCTTTTTT CAGGAAGTTT TTTCCAGTT	2040
GAAACTAAAA GAGCGGATTT CTAAGTATTT AGTAACGAAT GACCAACGCC GCTACTGTCTG	2100
TTATTTCGGAT TCAGATATCC TTGTCCAGTT CCTCTTTCAA CTGTAAACAG GTTATGGAAC	2160
GGACTATGCT TGTAAGAAT TGTCACTGA TGCCTACTTT CCAAAATTGT TGAAGGAGG	2220
GCAGCTTGCT TCACAGCCAA CCTTATCCCG TTTTCTTTCC AGAACTGACG AGGAAACAGT	2280
CCATAGTTTG CGATGCCTCA ACCTTGAATT GGTCAATTC TTTTACAGT TTCACCAGCT	2340

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AAACCAACTC ATTGTAGATA ACGATTCTAC CCATTTTACA ACTTATGGCA AGC

2393

(2) INFORMATION FOR SEQ ID NO: 91:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 4762 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 91:

TTTGATCTT TTTAGGTCTC TTTCAATCCA AACCCCTTAA ACTATACGTC ATTTTCGGTTC	60
CTGCAAGTCT TGTGGTAATT TTAGGTTTGA TTTTACTTTT CTTTTCACAA GAGCCTCTGC	120
ACGCTTCTTA TTTGATGGTC GTCTTCCCTG TTTTCTACT TTTATTGGTA ACCAATATTA	180
AGAGTCAACA GAGGGGGCGT AGTGCTAGAA GAAGCCGAAG AGAAACGCCA TTATGCCTAT	240
GGAGTCGTTT CTTCAAAGGA AATCTATATC TGCTAGTTTT TGGGTTTGTC TATCTTTTGT	300
CTGTTCCCTT TTTGATGAAG TTTGTCCTTT ATCCAGTACC TTATCAAGAA CGTAATCGTC	360
TTGCTGATTT GGTAAAAGAG GAGACAAATA CGGAAGATGC TATCTCATGC ATGGGATGAT	420
ACTGCGACTC TTTATCGTAA GAGTGAGCGC TTGTCCCATC GGCGATTTTG TCCCCGTTGC	480
ACTATACAGC AACTGAGGAA AATCGTAATA AGTTACTTAA TGACTTGAAA GAAAAACAAC	540
CTAAGGTGAT TGTGGTAAAT GATAAGGTGG TAGTCTGGTC TGAAGTGGAA ACACTCTTAA	600
AAGAAAATTA CCAACAAGTA AAGACTGATT ACTCAGAGTT TAAAGTCTAT AAAATTAAAT	660
AACCAAATCA ATATCTTGTG TATTTTAAAT AATTTTAGGA TTTTAAACAC AAGATATTGA	720
TTTTTCTTTT TAGAGTGGTA TAATACTTTT TAGAAAGAAC ATTTTAGAAA AGAGCATGCA	780
TATGATTGCA CTAGAAGAAA AAATTACAAT TTTGCCAACT CTCTTCGTCG AGAAACGAGA	840
TGGGAGACGT GTTGATTTTG ATGTGGACAA GATTGACAAG GCTCTCCACA AGGCGGCTGA	900
CAAGGTTATG GATGTGACAC CCCTGGTTGA AAAATGCCTC AATGATCTGA CTGAGCGAAT	960
TATTACAGAA ATTCATAGTC GCTTTCCACA GGGAATTAAG ATTTACGAAA TTCAAAATAT	1020
CGTAGAACAT GAACTCCTTG AAGCCAAAGA ATATGCGCTG GCTCAGGAGT ATATTACTTA	1080
TCGGACACAG AGGGATTTTG AGCGCTCAAA AGCGACGGAT ATCAACTTTA GTATTCTATA	1140
ACTTCTCAAC AAAGACCAGA CAGTTGTCAA TGAAAACGCT AATAAAGACA GTGATGTCTT	1200
TAACACTCAG CGTGATTTGA CAGCAGGGAT TGTGGGAAA TCAATCGGAC TGCAAAATGT	1260
TCCTAAGCAC GTAGCCAATG CCCACCAAAA GGGGGATATC CACTATCAGG ATTTGGACTA	1320
CAGTCCCTAT ACCCCTATGA CCAACTGCTG TTTGATTGAT TTAAAGGGTA TGTGGAAAA	1380

717

TGGTTTTAAG ATTGGAAATG CAGAGGTAGA GAGTCCCAAG TCTATCCAGA CTGCGACAGC	1440
ACAGATTTCT CAAATCATTG CCAACGTTGC TTCTAGCCAG TACGGTGGCT GTTCAGCTGA	1500
CCGTATCGAT GAAATTTTGG CGCCTTATGC ATAGAAGAAT TATCAAAAAC ATCTCAAAGA	1560
TGCAGAAGAG TGGGTATTGC CTGAAAAACA GGAAGATTAC GCTTGAAGA AAGCGCAAAA	1620
GGACATCTAC GATGCCATGC AATCTCTTGA GTATGAAATC AATACTCTCT TCACTTCAAA	1680
TGGACAAACA CCTTTTACTT CGTTAGGTTT TGGTCTGGGA ACCAGTCGTT TTGAACGAGA	1740
AATTCAAAAA GCTATTTTAA ACATTCCGAT CAAGGGTCTT GGTTCAGAAC ACCGTACGGC	1800
TATCTTTCCT AAACCTTATCT TTACGCTTAA AAGAGGCCTC AACTTAGAGG AAGGAACTCC	1860
CAACTATGAC ATCAAGCAGT TGGCTCTAGA GTGTGCAACC AAGCGGATGT ATCCAGACGT	1920
CTTGCTTAT GATAAGATTG TTGATTTGAC AGGTTCTTTC AAGGTGCCTA TGGGCTGCCG	1980
TTCTTTCCTT CAAGGGTGGA AGGATGAAAA TGGTGTAGAA GTCAATTCAG GTCGCATGAA	2040
TCTGGGTGTT GTGACGGTTA ATCTGCCTCG TATTGCTCTT GAGTCTGAAG GTGATATGAA	2100
TAAGTCTCGG GAAATCTTCA ACGAGCGAAT GAATATCGCA GAAGATGCTC TTGTTTACCG	2160
TGTCGAACGC ACTAAAGAGG CGACACCAGC GAATGCTCCT ATTCTTTATC AGTACGGTGC	2220
TTTTGGCCAT CGTCTAGGTA AAGAAGAAAG TGTGACCAG CTCTTTAAGA ATCGTCGTGC	2280
GACCGTTTCG CTGGGCTATA TCGGCTTGTA TGAAGTAGCG ACAGTTTCTT TTGGTAACAG	2340
CTGGGAAAGT AATCCAGATG CTAAGGAATT CACGCTAGAC ATCATTACAG ATATGAAACG	2400
CCGTGTAGAA GAGTGGTCAG ACCAATATGG CTACCATTTC TCTATCTACT CAACACCATC	2460
CGAAAGTCTG ACAGACCGTT TCTGCCGACT AGATATAGAC AAGTTTGGCT CTATTCTCTA	2520
TATCACAGAC AAGGAATACT ACACCAACTC TTTCCACTAC GATGTTTCGTA AAAATCCAAC	2580
ACCGTTTGAA AAATTGGACT TTGAGAAAGT CTATCCGGAA GCAGGTGCGT CAGGTGGTTT	2640
CATCCATTAT TGTGAGTATC CAGTCCTTCA GCAAAATCCA AAGGCCTTGG AAGCTGTCTG	2700
GGATTATGCT TATGACCGTG TAGGCTATCT AGGCACCAAT ACTCCGATTG ACCGTGCTA	2760
CAAGTGTGAC TTTGAAGGGG ATTTTGAACC AACTGAGAGA GGGTTTGCTT GTCCAAACTG	2820
TGGCAATAGC GACCCTAAAA CAGTAGATGT GGTGAAACGA ACTTGTGGCT ACCTAGGTAA	2880
TCCTCAAGCA AGACCGATGG TCAACGGGCG TCACAAGGAA ATCGCTGCGC GTGTCAAACA	2940
TATGAATGGT TCAACGATTA AAATAGCTGG GCATCAAGTA ACAAATTAGA AAGAAATGAA	3000
ATGGGAAAAT ATCAACTAGA CGATAAGGGG CGCGCACAAG TGACCCGTTA TCACGAGAAA	3060
CACTCTAAAG GTGGAGCTGG TAAGAAAGAA CGCTTGCTTA GCTTCAGAGA ACAATTTTAA	3120

718

AACAAGAACA AGAAAAATA AAAGTGAGAG CCAGCTCTCG CTTTCTCAT AGTGGGAGGT	3180
AAGGATGGAA TTACGCAGAC CAAGATTAGC GGATAAGAAA GCTGTTTATG ATATGATGAC	3240
AGAGTTTGAA AAATTTAGT CGCCTCACGA CGGCGGTTTC TGGGATACAG AGAACTTTGT	3300
GTATGAAGAC TGGTTAGAAA GCAATCAGGA ACAGGAAATG GGGATTAAATC TGCCTGAAGG	3360
ATGGGTTTCT GCAATTCAGT TAGTGGCTTT TTCTGAGAAA GGTCAAGCAG TTGGATTCTT	3420
TAATCTCCGG TTGCGCCTCA GTAATTTCT ACTAGAAGAA GGTGGCCACA TTGGCTACTC	3480
CATTCGTCCA TCTGAAAGAG GCAAGGGTTA TGCAAAAGAG ACTCTCCGTC AGGGCTTGCA	3540
AGTTGCTAAG GAAAAGAACA TCAAGAAAGC TCTGGTGACC TGTAGTGTGA ATAATCCTGC	3600
TAGCAGAGCA GTCATTCTAG CAAATGGTGG AATATTTAGG GATGCTCGCA ATGGAGTCGA	3660
GCGTTATTGG ATAGAGGTAG CGAATGAATA ATCCAAAACC ACAAGAATGG AAAAGCGAGG	3720
AACTTAGTCA AGGTCGTATC ATTGACTACA AGGCCTTTAA CTTTGTGGAC GCGGAAGGCG	3780
TGCGCAACTC TCTCTATGTA TCAGGCTGTA TGTTCCTACTG CGAGGGATGT TATAATGTTG	3840
CGACTTGGTC TTMTAATGCT GGCATTCCCT ATACAGCAGA ATTAGAAGAG CAGATTATGG	3900
CAGACCTTGC CCAACCCTAT GTTCAAGGCT TGACTTTGCT GGGAGGGGAG CCTTTTCTCA	3960
ATACTGGGAT TCTCTTGCCA CTTGTTAAGC GGATTCGGAA GGAATTGCCA GACAAGGACA	4020
TCTGGTCCTG GACCGGCTAC ACTTGGGAAG AAATGATGTT GGAAGCTCCA GATAAACTGG	4080
AATCTTGTC ACTGATTGAC ATTCTGTGCG ATGGAAGATA TGATCGAACT AAGAGAAATC	4140
TTATGCTCCA GTTTCGAGGT TCATCTAACC AACGAATTAT CGATGTGCAA AAATCGCTCA	4200
AAAGTGGGCA AGTAGTGATT TGGGACAAGC TCAATGACGG AAAAGAAAGC TATGAACAGG	4260
TGAAGAGAGA ATGAAGAAAA AGGACTTAGT AGACCAACTA GTCTCAGAGA TCGAGACGGG	4320
GAAAGTCAGG AACTGGGAA TATACGGTCA TGGAGCTTCA GGTAAATCAA CCTTTGCACA	4380
GGAATTGTAC CAAGCTTTAG ATTCTACTAC AGTAAATTTG CTAGAGACAG ATCCTTATAT	4440
CACCTCAGGA CGCCATCTGG TAGTACCCAA GGACGCGCCG AATCAAAAAG TGACAGCCAG	4500
TCTGCCAGTG GCGCATGAAC TGGAGAGTTT GCAGAGAGAT ATCCTTGCTT GCAGGCGGGT	4560
ATGGATGTCT TGACAATTGA AGAACCTTGG AAGGCTAGTG AGGTCTTGTC TGGAGCCAAA	4620
CCAATTTTGA TTGTGGAAGG GATGTCTGTT GGCTTTCTAC CCAAGGAACT CTTTGAAAAA	4680
ACCATCTGTT TCTACACGGA TGAGGAGACC GAATTAAAGC GACGCCTTGC TAGAGATACG	4740
ACTGTGAGAA ATCGCGATGC GG	4762

(2) INFORMATION FOR SEQ ID NO: 92:

(i) SEQUENCE CHARACTERISTICS:

629

CGTATCTTCT CGTTCTGAAA AAGTTGGTGA GTACATCTCT GAAGCAATGG AAAAAGTTGG	780
CAAAGACGGT GTCATCACCA TCGAAGAGTC ACGTGGTATG GAAACAGAGC TTGAAGTCGT	840
AGAAGGAATG CAGTTTGACC GTGGTTACCT TTCACAGTAC ATGGTGACAG ATAGCGAAAA	900
AATGGTGGCT GACCTTGAAA ATCCGTACAT TTTGATTACA GACAAGAAAA TTTCCAATAT	960
CCAAGAAATC TTGCCACTTT TGGAAAGCAT TCTCCAAAGC AATCGTCCAC TCTTGATTAT	1020
TCCGGATGAT GTGGATGGCG AGGCTCTTCC AACTCTTGTT TTGAACAAGA TTCGTGGAAC	1080
CTTCAACGTA GTAGCAGTCA AGGCACCTGG TTTTGGTGAC CGTCGCAAAG CCATGCTTGA	1140
AGATATCGCC ATCTTAACAG GCGGAACAGT TATCACAGAA GACCTTGGTC TTGAGTTGAA	1200
AGATGCGACA ATTGAAGCTC TTGGTCAAGC AGCGAGAGTG ACCGTGGACA AAGATAGCAC	1260
GGTTATTGTA GAAGGTGCAG GAAATCCTGA AGCGATTTCT CACCGTGTTG CGGTTATCAA	1320
GTCTCAAATC GAAACTACAA CTTCTGAATT TGACCGTGAA AAATTGCAAG AACGCTTGGC	1380
CAAATTGTCA GGTGGTGTAG CGGTTATTAA GGTGGAGCC GCAACTGAAA CTGAGTTGAA	1440
AGAAATGAAA CTCCGCATTG AAGATGCCCT CAACGCTACT CGTGACAGCTC TTGAAGAAGG	1500
TATTGTTGCA GGTGGTGGAA CAGCTCTTGC CAATGTGATT CCAGCTGTTG CTACCTTGG	1560
ATTGACAGGA GATGAAGCAA CAGGACGTAA TATTGTTCTC CGTGCTTTGG AAGAACCCGT	1620
TGCTCAAATT GCTCACAATG CAGGATTGTA AGGATCTATC GTTATCGATC GTTTGAAAA	1680
TGCTGAGCTT GGTATAGGAT TTAACGCAGC AACTGGCGAG TGGGTTAACA TGATTGATCA	1740
AGGTATCATT GATCCAGTTA AAGTGAGTCG TTCAGCCCTA CAAAATGCAG CATCTGTAGC	1800
CAGCTTGATT TTGACAACAG AAGCAGTCGT AGCCAATAAA CCAGAACCAG TAGCCCCAGC	1860
TCCAGCAATG GATCCAAGCA TGATGGGCGG GATGATGTAA GCTTTCTATA GAAAACAACT	1920
TATAAAAAAC ACAAAAGGAG GGAATGACTA ACCCTTCTTT TTATAGGCTC TTTGCTCACT	1980
GTAGTGGGTT GAAGTCAGCT AAGCTCGAGA AAGGACAAAT TTCGTCCTTT CTTTTTTGAT	2040
GTTCAAAGCG ATAAAAATCC GTTTTTTGAA GTTTTCAAAG TTTGAAAAC CAAAGGCATT	2100
GCGCTTGATA AGTTTGATGA GATTATTGGT CGCTTCCGGT TTGGCGTTAG AATAGTGTAG	2160
TTGAAGGGCG TTGATAATCT TTTCTTTATC TTTGAGGAAG GTTTTAAAGA CAGTCTGAAA	2220
AATAGGATGA ACTTGCTTAA GATTGTCCTC AATAAGTCCG AAAAAATTCT CCGGTTCTTT	2280
ATTCTGAAAG TGAACAGCA AGAGTTGATA GAGCTGATAG TGATGTTTCA AGTCTTGTA	2340
ATAGCTCAAA AGCTTGCTA AAATCTCTTT ATTGGTTAAA TGCATACGAA AAGTAGGACG	2400
ATAAAATCGC TTATCACTCA GTTTACGGCT ATCCTGTTGT ATGAGCTTCC AGTAGCGCTT	2460

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GATAGCCTTG TATTCATGGG ATTTTCGATC CAATTGGTTC ATAATTTGAA CACGCACACG	2520
ACTCATAGCA CGGCTAAGAT GTTGTACAAT GTGAAAGCGA TCCAACACGA TTTTAGCATT	2580
CGGGAGTGAA ACAGTCTGGG AGACTGTTTC AGCCTGAGCC TAGAAATTTG AAAGCGAAGC	2640
TGTTTAGCCA AGTCATAGTA AGGACTAAAC ATATCCATCG TAATGATTTT CACTTGACAA	2700
CGAACGGCTC TATCGTAGCG AAGAAAGTGA TTTCGGATGA CAGCTTGTGT TCTGCCTTCA	2760
AGAACAGTGA TAATATTAAG ATTATCAAAA TCTTGCGCAA TGAAACTCAT CTTTCCCTTA	2820
GTGAAGGCAT ACTCATCCCA AGACATAATC TTTGGAAGCC GAGAAAAATC ATGCTCAAAG	2880
TGAAAGTCAT TGAGCTTGCG AATGACAGTT GAAGTTGAAA TGGCCAGCTG ATGGGCAATA	2940
TCAGTCATAG AAATTTTTTC AATTAACTTT TGAGCAATCT TTTGGTTGAT GATACGAGGG	3000
ATTTGGTGAT TTTTCTTTAC CAGGGGAGTC TCAGCAACCA TCATTTTTGA ACAGTGATAG	3060
CACTTGAAAC GACGCTTTCT AAGGAGAATT CTAGAAGGCA TACCAGTCGT TTCAAGATAA	3120
GGAATTTTAG AAGGTTTTTG AAAGTCATAT TTCTTCAATT GGTTCGCCA CTCAGGGCAA	3180
GATGGGGCGT CGTAGTCCAG TTTGGCGATG ATTTCCCTGT GTGTATCCTT ATTGATGATG	3240
TCTAAATCT GGATATTAGG GTCTTTAATA TCGAGCAGTT TTGTGATAAA ATGTAATTGT	3300
TCCATATGAA TCTTTCTAAT GAGTTGTTTT GTCGCTTTTC ATTATAGGTC ATATGGGACT	3360
TTTTTTCTAC AACAAAATAG GCTCCATAAT ATCTATAAGG GATTTACCCA CTACAAATAT	3420
TATAGAGCCG AAAATTCACA TCTAATATAT GCAGACTACT TTGAAATGAA ATTAAAAAAA	3480
TTATTAAAGG ATGACACAAA AGTTTTTGAA AAATCTACAT TCAAATTTGT AGAAGGATAT	3540
AAAATATACC TGACAGAATC TAAAGAATCT GGAATTAAAC AAATCGACAA TGTCATAAAA	3600
TATTTTGAGT TTATTGAATC TAAAAGTATT GCTTTATATT TTCAAAAACG ATTAAATGAG	3660
CTGATAGATT AAATAGCATT TTCTCTGTTG AGATATTGTT TTTAAAATAT TGTACTAAAT	3720
GATTGATGCT ATGTGGAAAT ACAAAAAAAT GTTTTTGATA CGAAGTTGAC CTGTATTTTT	3780
TATACTAATC ATTTTCGTAT TTTTGTATT AAACGATATA AGTTTGTGTG AAACCTTACA	3840
GGAATAAAGA CATTAAAAAA TAACAGTATA TCTATTTGTT TTATATATTT TACGAATTCT	3900
GCATAAATCT CTTTCTAGTA ATGTGTTGTA ACTCTGCTAT AATAGATTTA TTCTTTTTTG	3960
TGTTTACACA ATTTATTTTA TACTACCAAA AAAGGTCAGG ATTTTGTTCG TGACCTTTGA	4020
CAACTTTACC GATTCCTTAG TTCTACATAG CGCTTGTAAC AAATGTTTAC ATAGGCTTCT	4080
GAGAAAGGAC CACGTCCATT GTTAATCCAA TCAACAAGAA TTTTGACATG TTCTTTTAAA	4140
ATATAGTCCA AGTCATCAGA ATAATTCATT TTGCGTTTGT GACGCTCGTA CTCTTCAACG	4200
TCCAAGAGAC GTTTTTCCCC ATCTGTAAAA ATTTTAACAT CCAAATCGTA ATCAATATAC	4260

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TTCAGTGCTT CTTCATCCAG ATAGTAGGGG CTAGCCATAT TGCAATAGTA AGAAGTTCCA	4320
TTATCACGAA TCATGGCAAT GATATTAAAC CAATATTTCT TGTGAAAGTA AACAATAGCC	4380
GGTTCTCGAG TGACCCAACG ACGACCATCA CTTTCGGTAA CAAGTGTATG ATCGTTGACA	4440
CCAATAATGG CGTTTTCTGT TGTTTTTAGT ACCATGGTGT CCCGCCAAGT TCGGTGGAGA	4500
CTCCCATCAT GCTTATAACT TTGAATTGTA ATAAAGTCGC CTTCTTTTGG AAGCTTCATA	4560
ACTAACCAAC TTTCTACAAT TTATAAGTTT ATCATTACT ATTGTACCAT AAAATTACCC	4620
AAAATCTGTG AATTTCACCTT GGAAATATTA AAGATATTCT CTAAGAGCGC TTGCTATATC	4680
CGAAAAATCG TAGCCCTTTC GTGCTAAAAC TTGAGTTAAA CGCTGCTTCA GTTCGTATCC	4740
TTCATACTTT CGGGCATACT TAGTATATTG CTTATCAAGT TCCTTGAAGA TGAGTTCCTG	4800
AGTCGTTTCT TCATCAACTT GACTATCCAA TTCGTCAAAG GCAATTTTAG CATCAAAATA	4860
AGAGAAGCCC TTGTTAGTCA AGTTCTGGAT AATCTTATCT TGCAGGGCAC GAGCTGGAAG	4920
TTTTCCCTCA TATTTTTTCA ATAGTTTATT GGCTACACGT TGAGCAACTT CCGAAAAATC	4980
AAAATCATTG AAGATTCTT CTATAGTAGA TTTTGAAATT CCTTTTTGTG CTAATTTCTG	5040
AGTCAGTACA TAAGGTCCCT TGTCTCCTGA AAGTTGATTG GCATTGATGA TAGCATAAGC	5100
GTA CTGGCTA TCATTAAATCC ACTTCTCTTC TTTAAGATTA GCAATGACTT GAGAAACCAT	5160
GTTTTCATTA ATATCATATT TTTTCAGATA TTCTCTGACC TCTTTTTTCTAG TACGTGCTTT	5220
AAAGGATAAG TGGTAGAGGG CCAGATTCTT ACCATAAGAA AATTGAGCAA AGTCTTGAAT	5280
CTCTTTCAAT TCCTCTTCGC TTATCACCTT ATCTCTCGAT AACATAAAAC GAACAATTGT	5340
GTCTTCGGTG ATATAGCATT TGTCG	5365

(2) INFORMATION FOR SEQ ID NO: 78:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 3636 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 78:

TTTCCAGAAA GAAGTTGAGT AAAGTCTTTA TCAAAGAGAA TGA CTCCGT ATTGGA ACTG	60
ACATTAGGTT TTATTTCTAC TTTACTAGCG TCCGCCCTAG CATTCTCTAA ATCTTTAATC	120
TCTTCTGTTG CCTATTTAT AGCCAGCTGA ATAACTGCTT GAGGATTTTC ACTCAGTCCA	180
TGAAGCTTAT CGTCCACCGA AGTATAAAGA CTCGAATGCA TGACTTGTA AATAATCAGA	240

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GTCATTGTAG	AAAAAATCAG	GGTGAAGACA	CCGAAGTTGC	GGATAAAATA	ACTAAAGTCA	300
TCCGCATACC	ATGTTTTTTT	AAGTTTACTG	AACATCTTTT	AAAAGATACC	CAACACTACG	360
CAAAGTTTGC	AAATTCTCTG	CAAAAGTGGT	TCCCTTTAAT	TTCTTACGGA	CTTTTGAAAC	420
ATAGACTTCG	ACAACCGAAA	TCGTTGTATC	ACTATCAAAT	CCCCATAGAC	GGTCAAAAAT	480
CTGCGTCTTA	GGCAAAATCA	CATTTTGATT	TTGAAGGAAA	TAAACTAGTA	AATCGAACTC	540
TTTCCCCAGC	AATTCGACAG	GAGTATCTTC	AACTTTAACG	GTATTGGTTG	ATAAAATTAAC	600
CACGATATTC	CCATAAGTCA	AGGTGTTTTT	ATTAACTTTC	CCTGAACGTT	TGAGAAGGGC	660
CTGAATCCGC	ATTTTAAGTT	CTTCTAGGTA	GAAAGGTTTG	GTCAGATAAT	CATCCGCTCC	720
CAGTTCAAAT	CCATGTCCCT	TGTCATCCAA	ACTTTCCTTG	GCAGTCATAA	TCAGAACTCG	780
TGTCGTAATT	CCCTTTTCAC	GCAATTCTTT	TAAGACTTGG	AAACCATTTT	TTTCTGGCAA	840
CATCAAATCC	AGCAAAATCA	AGTCATAGAC	ACCACTCTCA	GCTTCGTAGA	GACCTTCTTC	900
TCCATCAAAT	ACCTGCATAA	CATCCGCAAA	ATCGTCTAAA	AAGTCAAATA	CTGAATTGCA	960
CAGACCTAGG	TCATCCTCAA	CCAATAAGAT	TTTTATCATG	AGAAACTCCT	CCTTATTAAA	1020
ACTATTATAC	CAAATTTGCC	TTAAAAAATA	CTCAACTCTC	TGCATTTTAC	ATGAGATAGC	1080
TGAGTTTTCT	TTTTATTTTA	GGCTTATTTA	TGCATTTCCG	TATTGAAGAA	CAACTGCTTC	1140
GACTGCAGCT	TTTTCACGGC	TAATCAAGTC	AACACGCGCT	GCAATTTCCCT	TGATTCCCAT	1200
ACCGATGTTA	CGGCTAAGAG	CAAGGTCAGA	AAGTTGCGGT	TCAAAGAACT	CCTTGTATTC	1260
CGCCAAGCGT	TGCTGAGTCT	TAAATACATG	AGCAGGAAGG	ATAACAAAGC	TATCAAAGCT	1320
CATATCTCCT	CCAAGGGCTG	CCTTAATCCA	AGCCCAGTTT	TCACGCGCCC	AAGACCAAGC	1380
TGTTTTCTGA	GTTGCTTGAT	GAGCTAGGAA	TTGGTAATAC	CAAGCAGACA	AGTCCTGTGG	1440
TTTGACCACA	AATTTGTCCT	TCCAAGAAGT	AATCAGGTTT	TGGATATTAT	CCGCATCTGT	1500
ACTGTATGCA	AGAGCTGCTG	CCAAGTGGCG	TTTAAAGACA	GCATCTGTTG	CGTGAGTATA	1560
AGTATCAAGA	TAAAGTGCTA	ACAAGTCTTT	AGTCTCATGA	TGTTTCATCT	CATTAATCAG	1620
AACTTGTGAG	CGAATAGCTG	CTGGGAGTCC	TGCAAGATTC	TCCTTGTGTG	TTGCGAAGAT	1680
TTGGCTAGCG	ACTTGACTAG	CTTCTGCATC	ATTTGAGCGA	ATCATCATCG	AAACAGCCAG	1740
CTGACGAACC	AATTCATCCT	CATCTGATTC	TCCGTCTTTA	GCTTCAAAAC	CAAGACGGTC	1800
ATAGTTATGA	CGAGCCAATT	TAGCAACCAG	TCCTTTGAAG	GCTGTTTCAG	CATCCGTTCC	1860
TTTCATCAATA	AAGCGCTCAA	GGGCTGAAAT	CACCTGAGAA	ACAGCTGAAA	CCACCAGATA	1920
AGACTCTTCC	TTAGCAAGTT	TATCAAGAAC	TGGAAGCAAG	TCTGCATAAG	AAATGTGCCC	1980
TGCCTCAGCC	AACAAACGAC	GTTCTTGAAC	AATTTGCACT	TTGCTTGTGT	TATCAAGTGT	2040



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CTCTAGCTCA GCAAGAACAG CTGCTAACAA GTCTCCTTGA TAGTCGGTAA TATAGTGGGC	2100
AGTATTTTCA GTGTTGAGAC GAAGAGCTCC TTCATTTTCA GCAAGAAGAG CTGCGTAGCC	2160
AGGGATTTTCG ATACTTTTCAG TTTCGAGTGT ATCAGGCAAG CCTTTCCAGT TGCTATTGAG	2220
GGGCACCACC CAGAGACGGT TCTTGCTCTC GTTCTCACCG ATGAAGAATT GTTTTTGTGA	2280
AATCTTCAAG ACATCATTTT CAACTTTAAC AGTAAGAACT GGGTAACCAG GCTGTTCCAA	2340
CCAAGAATCC ATGAAGGCTG CGACATCACG TCCTGACGCT TGACCAAGGG CATCCCAAAG	2400
GTCACTACCA ATGGTGTTGC TGTATTGGTG TTTTTCAAAG TAGGCGTGCA AACCTTTAGC	2460
AAAATCAGCA TCTCCTAGCC AACGGCGAAG CATGTGCATG AGACGGCTTC CTTTGGCATA	2520
GACGATAGCG CCGTCAAAGA GTGTATTGAT TTCATCTGGA TGTTTAACTT CGACGTGGAC	2580
AGACTGAACG CCATCAGTAG CGTCACGTTC AAGAGCAAGA GGTACTCCAC CTGTTTGGAA	2640
ATCTTCAAAG ATATTCCAGC TTGGTTCGAT GGTATCCACA CAGACGTATT CCATCATATT	2700
AGCGAAACTT TCATTGAGCC AAAGGTCATC CCACCATTTC ATAGTCACGA GGTTCCEAAA	2760
CCATTGGTGA GCCAATTCAT GGGCCACAAC AAGGGCAACT TGTTGACGGC TAGCAAATGT	2820
AGAGTTCTCA TCGACAACCA AGTAACTTC ACGGTAGGTC ACAAGACCCC AGTTTTCCAT	2880
AGCACCAGCT GAGAAGTCAG GAAGGGCGAT GTGGAGAGAT TGAGGAATTG GGTACTTAAC	2940
TCCATAGTAA TCTTCGTAAG ACTCGATAGA GCGAACAGCG ATATCCAGTG AGAAATCAAG	3000
ATTTGAAAGT GCATGTGCTT TGGTTGAGTA GACACCTACC AGGGTACCAT TTTTAGTTTT	3060
AGCGGTCAAC CCTTGCAAAT CACCAGCAAC AAAGGCCAAC AAGTAAGAAG ACATGCGAGG	3120
TGTTGTCTCA AACTTCCAGA TACCTGTTTC CTTACGGTTT TCAACATCGA TTTCTGGCAT	3180
GTTTGACAAG GCCAATTCAC CTTCTGCTTG GTCAAAGCGA AGAGAGAGGT CAAAAGTTGC	3240
TTTGGCTTCA GGCTCATCCA CACATGGGAA AGCTTCGGCG GCAAAATGGC TCTCGAACTG	3300
AGTAGACAAG ACCTCCTTCT TGACTCCATC AACTGTATAA TAAGAAGGGT AAATCCCTGT	3360
CATGTTGTCT GTAATTTTAC CAGAAAAGGC AAGAACCAAT TCAACTTGAC CAGCCTCAGC	3420
CAATTCGATA TGAAGGGCTT CATTGTCATG GTCAACTGTA AATGGACGAG CTTGACCTGC	3480
AACTTCTACA GAGGTGATTT CCAAATCTTT TTGGTGGAGG GAGATCCGGT CACTCTGTGC	3540
TTGACCAGTG ATGGTCACTT TCCCAGAAAA AGTCTTGCTC TCACGACTCA AATCTAAAAA	3600
TAAATCATAA TGTTCAGGAA CAAATTGCTT AATGGG	3636

(2) INFORMATION FOR SEQ ID NO: 79:

(1) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 5066 base pairs

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(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 79:

ATAGCGTGTA ATAATCGATT TTAGAGGTAC CATAAGCCAC CTCCTACAAA TAGAAACCGA	60
TATAAATCAA TGCCTTCCAC CCTTAGACTT CCCTAGTTCC TGTCTCAAGC GAAACATTTT	120
TTTGAAACAG GAATAAGTTA ACCAATTCAT ACCAATAGCT AGCAGAATAA AAAGAAACCA	180
AATGCCCCAT AACTTGATAT CTGTACATT TCTCAAGACG GTATTGAAAA ACAGAACTGA	240
AACAACCTGTC CAAGCAAGGC TAAAAAGAGA ATAGAAGGGG ATGTAAAACC AGTAAAAATA	300
ATAAAAAATT GGAAAAAACT TACTATTCTT GTTGGCCTTT TCAATCCAGT TATCAAAATA	360
AAAGTACGGT GCTAAAAGTA AGAATTTAAA CAAATGTTCC ATCACCGACA TCCCCCCTTC	420
TTTTGATAGC GTTTTCTATT ATTTTATTAT ATCAAAAAAA TCCGGAACGT TCATTCCAGA	480
TTCTACTTTT TTATTTGCGT TTTCTTGCGA TGAGATGAAT CGGTGTTCCC TCAAAAACAA	540
AGGCCTTGCG GATTTGATTT TCCAAGAAAC GCAGGTAAGA AAAGTGCATG AGTTCTTCTT	600
CATTGACAAA GATGACAAAG GTTGGTGGTT TGGTTGCCAC TTGGGTCGCA TAGAAAATCT	660
TGAGACGTTT TCCTTTGTCT GTCGGTGTG GGTGATGGC AATGGCATCC ATGATGACAT	720
CGTTCAAGAC AGCTGATGGA ATACGTGTAT TTTGACTTTC GCTGATTTGC TTAATCATCT	780
CAGGAAGTTT GTGGAGACCT TGCTTGCTTA AAGCTGATAC AAAGATAATC GGTGCGTAAG	840
GCAGGTATTG GAACTGCTCA CGGATATCTT CTTCCCAGTT TTTCATAGTG TGGTTATCTT	900
TTTCAAGCGT ATCCCACTTG TTGACCACGA TAATCATCCC TTTACCAGCT TCATGGGCAA	960
ATCCTGCGAT ACGCTTGTG TACTCACGAA TGCCTTCTTC CGCATTGATG ACCATCAAGA	1020
CCACATCTGA ACGGTCAATA GCACGCATGG CACGCATAAC AGAGTATTTT TCAGTATTTT	1080
CATAAACCTT ACCAGACTTA CGCATACCAG CCGTATCAAT CATGGTAAAC TCTTGACCAT	1140
CTGTATCTGT AAAGTGGGTA TCAATGGCAT CACGAGTTGT TCCAGCAACA GGACTAGCAA	1200
TAACACGGTC TTCTCCCAAG ATAGCATTGA TCAAGCTTGA TTTTCCAACG TTAGGACGAC	1260
CAATCAAGCT AAACCTTAATG ACATCTGGAT TTTCTTCCTC ATATTCATTT GGAAGATTTT	1320
CTACGATCGC ATCTAGCACA TCCCCTGTAC CGATTCCATG GACAGATGAG ATAGGCAATG	1380
GTTCACCCAA ACCGAGAGCA TAGAAATCAT ATATATCATT TCTCATCTCA GGGTTGTCCA	1440
CCTTGTGAC TCGGAGGATA ACTGGTTTGT GGGTCTTATA AAGCTTACGA GCTACGTATT	1500
CGTCTGCATC AGTAATTCCT TCCTTACCAG ACACGACAAA AACCATAACA TCTGCTTCTT	1560

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CCATGGCAAT TTCTGCCTGG TGCTTGATTT GTTCCATGAA AGGAGCATCG ACATCATCAA	1620
TTCTCCTGT ATCAATCATG CTAAAAGAAC GATTGAGCCA CTCACCCGTT GCATAAATAC	1680
GGTCACGTGT CACTCCTTCG ACATCTTCTA CAATGGAGAT TCGCTCACCA GCGATCCGAT	1740
TAAATAGGGT TGATTTCCCA ACATTGGGAC GTCCTACAAT GGCAATAGTT GGTAGGGCCA	1800
TAATTTCTCA CTTTCTACAA TAATTTCTTC TGTTCAGAT TTTTCTAGT TGAGCTTGGT	1860
TCAGCTTGAC CAAACTGTTT TGCTAGGCGC TGACTCCAGC TTGTGGTCGC ACGCGCCCCA	1920
GCATAGTCAG CCTGAACACG GTCATAAGCT TGGATTGCCT CAGTTGACTG TTCTTGGTAT	1980
TCTTCCTCAA AGACAACATT CTCTAGTGGC AGTCTCGGTT TCATATCATG ATGTTGATTT	2040
GGCACACCCA GTGCCATCCC AAAGACAGAA TAGGTGTAGT CAGGTAGGTT AAAGAGCTCT	2100
GCCACTTCTT CAGACTTGTA TCGAACCAAA CCGATAATCA CACCACCATA GCCCAAGCTT	2160
TCAGCTGCCA ACAAGGCGTT TTGTCCAGCA AGAGCTGCAT CGACCGAACT AATCAAGAGA	2220
CCTTCCACAC CTTGGGGTTG GAAGGTGTCG GTATGAAGTC GGGCTCCCTT TTCTGCTCGG	2280
TTCAAATCTC CGACAAAGAG AAGGAAAACA GCAGACTGGC GAATGGCTTC TTGAGGTACC	2340
AATTCATACA AGGCATCTTT CTCTCTTGA CTTCGTACCA CAATCACAGA GTAGGATTGG	2400
AAATTCTTCC AAGATGATGC CATCTGGGCT GCTGTCAAAA TCTCATTTAA GTCTACTTGG	2460
GGAAATTTCTT GCTCTTTAAA CCTGCGCACT GAAGTATGAG CCTTCATCAA TTAAATGGTT	2520
TCTGTATCG ACGGTTTACT CCTTCTAAAC GAGTCTCCTC AGCCAAATAA CGGATGCGTT	2580
CCATGACCCG TCTGGCTTCC CAGGTTTCGT CATTTCCATG TTTCACTTTC GCAAAATGCT	2640
TCTCCAAATC TTCAAAGTTG AAGTTGGATG TGAAAAAGGT CGGTAAATTT TCCTGCATCC	2700
GATATTGGAG AATGACCTGC AGGATTTTCGT CACGCACCCA AACGGTTGAT TGCTCGGCGC	2760
CAATATCATC TAAAATCAGG ACCTCAGACA GCTTAATCTC ATCCACCAAG GTCTTAACAT	2820
TGCCATCACT GATAGCATTT TTGACATCAA TGACAAAGCT AGGATAGTGG AGGAGAGTTG	2880
ATGAAACACC ACGTTTTTCT GATAAATCAT GAGCTAAGCC CGCCACCATG AAACTTTAC	2940
CCACACCAAA GTCTCCATAT AAGTAAAGAC CTTTTCGAAT AGCTGGATAT TGCTCCACGA	3000
AGGCTAGTAG CTTTTCAAAA ACTGGTAAGC GCCCAAAATC ATCCAAGTCA ACTTGAGCCA	3060
AACTAGCTTT CTTGAGACTG GCTGGTAGAT TGATTAAGTT GAGACGGTTC TTAATAGCCG	3120
CTTCTTTTTC AGCCGCGATT AGCTCAGGAG TTTCTTCATA TGAAACATCT GCATAACCAT	3180
GATTCTTAAC CAAAATCGGC TTGTAGCCTT TGGCAATATA ATCCGTATCC CCACGGAGAA	3240
ACTTGTCACG CTCGGTGATG TACTGATTAA ACTTGAGAT ACTGCGATTT AATTCCTTTG	3300

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GAGTTAAGGA TTCTTGCTGG ATAAAGGCCG CAACATCAGG GTCCTTCATG ATTTTCTGGA	3360
CCAAATCTTG ATAATAAAAA CGGCTGGGTT GACGTTTGAG TACGTCTCCG ACACTTTCCA	3420
TCTAATCTCC TCCTTTTCT AATCGAGCTA ATAGTTCTTG CTTCTTACGT TCTAGTTCCA	3480
GACGAGTTTC CTCGCTGGTT TCATTCTTAT ATTCAGGATT ACTCCATTTA GGAACATTGG	3540
TTTTTCTGG GGCAGTCTGA TTCTGTTTTT GTGTTTTTGC TTTCTGCCCT CGATCACCAG	3600
TTGCTAAAAC GGCCTCTTCT GCCGAATGAA TCTTTTGATA GGCATAGTCA TTGGCTACCT	3660
TCATGGCATA TTTCTCATTG ATATTGCCG AATCCACCTT ATTAAGGTC AATAAGAGAA	3720
TAATATTGAT GACTTCGTCC AGTAAGCCCA AGCCAGCCAT CTGTGCAAG AGTTCTCTTT	3780
CTGTTTGGGT AATGGTTCCC TTGCGTGTTT GCTTGATTTC TGCTAAGAAC TGCAGGGCAG	3840
TTTACTTTT AGCTTCTTTG ATAATGGTCG CTCCTTAAG ACTAAAGTCA GAGGAACTG	3900
GTTTTGAGC AATTTTTTCA CGCATGCGTT TGGTTGAAAT AACCTGGGAA ACAGCTGTTG	3960
ACTTGCCAA TTGATAGGTT TCAAACCAAG TCCATTTCTT CTCCTCGGCA ATAGCAAAGA	4020
GGTTTAAGAC ATCGGACTGC TCATCCGCAA AACGAAGTCC ATCTCGAGCC ATCAGCTGGC	4080
GAAAATGTTT CAAGTCAAAA TCATTGGCCA CTTTCTTCTT GAGACCAAGG TCTTCTTGAC	4140
TGCCTAGTTC TGCCAA'TCTT GGAAAGACTT GATTGAGTGA GACAGGTATT TCTTCACCAT	4200
CAGCACTTTC AACTTTCAAA TCCTCCACAG CTACATCGCC AATCTTTTTT TCTAAGAGTC	4260
TGCGATAAAC AGGATGCCCC AAGAAGTCTT GACTAGATAG AGGAGCATGG AGGGCTAGCT	4320
GATAAACATC ACCCTTTTGA TAGAGGGTCA AGAGATTAAA AGCAGATAAG ATTTTCAATG	4380
ATTTTATCAG TCTATCCATC CCAAAGTTGA GATGGTTGAG AATGCTTGAA AAAAGATATT	4440
CCTTTCTACC ATTATCCCAA AAAGTATTG TATAAAGATA AAGGCTCAGT GCCTCCTGAC	4500
CGATAATCGG GAGGTAGCAC TGTACCAGAG ATGAGGTATC TTGCGACACC CGATTATTCT	4560
TTAGATAAGA AAAACGGTCA ATTGGCTTCA TTTATCTTTC CTTTTTCTTT TTAGAGGACT	4620
GGGTGATTG TTGGAGCAAG CTCTCTAACT CACTGACATC CTTAAACTA CGATAGACAC	4680
TAGCAAAACG TACATAGGTA ATCTCGTCCA ATTCAGCCAA CTCCTCCATG ACGAGTGAAC	4740
CAATGTCCTC ACTTTGAATT TCATTTCAT TTCGACCACG GAGTTTCTGT TCGATACGAT	4800
TGACTACCAT GTTGATTTC TCACTTGACA CAGGACGTTT CTGGGCTGAG CGGATAATCC	4860
CATTAAAGAT TTTATCTCTG GAGAATTGTT CCCGTGTGCC ATCTTTTTTA ACAACCACTA	4920
AGGTTCCTTC TTCTACTCGT TCGTAGGTTG TAAACGGTG TTGGCATTCT TCGCACTCAC	4980
GTCTTCTACG AATGGTGTTT CTTCTTCTG CTGGCGACT ATCGATAACA CTTGACTTGG	5040
TAGCCCCACA TTTTGGACAG GGTACC	5066

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## (2) INFORMATION FOR SEQ ID NO: 80:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9607 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 80:

CACTTGAAGT ATTGAAACA GCTATGGAAA ACATCATGCC TGTACTTGAA GTACGTGCAC	60
TCGCTGTTGG TGGTTCTAAC TACCAAGTCC CAGTTGAAGT TCGTCCAGAA CGTCGTACAA	120
CACTTGGACT TCGTTGGTTG GTAACAATCG CTCGCTTCG TGGTGAACAC ACAATGCAAG	180
ACCGTCTTGC AAAAGAAATC TTGGATGCTG CTAACAACAC TGGTGCAGCA GTTAAGAAAC	240
GTGAAGATAC TCACCGTATG GCTGAAGCTA ACCCTGCATT CGCACACTTC CGTTGGTAAG	300
ATAGGATGCG AAAGCGTTAA GAAAGTCCCA GAGAAAATAG GGAATCGAAG CAGGTTGCGG	360
TTGCAACCAA TGACATTCAT CTTTTCTCC AGACTTTTAG CTTGAGCTCA ACTAAATCAT	420
GATGCTAGGA ACGGTAAGGA TGCAAGGTAA AAATAGGAAA CTGACGCAGT ATTCCGACGAA	480
TACAAGGAGT TTTATCTTTT TCACGCAGCA TCCCGTTCCA GCTCACATCG GCTAACTAAC	540
TTTAGCCCGG GTTCAAATTA GCTAAATCGA TTAGTATTAG CTATAACTCA GCTTACCATC	600
TCGTAAGTTG AAACCAACAA TAGCATGAAA ACATTGAGAA CCGGTAGGTC CTGCCTATCC	660
GTTTTTATTA AAATCGTGTT ATAATAGAAT AGAAATCAAA AATAAATAGG AGAAACAAAC	720
CTCATGGCAC GCGAATTTTC ACTTGAAAAA ACTCGTAATA TCGGTATCAT GGCTCACGTC	780
GATGCCGGTA AAACAACAAC TACTGAGCGT ATTCTTTACT AACTGGTAA AATCCACAAA	840
ATCGGTGAAA CTCACGAAGG TCGGTCACAA ATGGACTGGA TGGAGCAAGA GCAAGAACGT	900
GGTATCACGA TCACATCTGC TCGCAGCACA GCTCAATGGA ACAACCACCG CGTAAACATC	960
ATCGACACAC CAGGACACGT GGACTTCACA ATCGAAGTAC AACGTTCTCT TCGTGTATTG	1020
GATGGTGCGG TTACCGTTCT TGAATCACA TCAGGTGTTG AGCCTCAAAC TGAAACAGTT	1080
TGGCGTCAAG CAACTGAGTA CGGAGTTCCA CGTATCGTAT TTGCCAACAA AATGGACAAA	1140
ATCGGTGCTG ACTTCCTTTA CTCTGTAAGC ACACTTCACG ATCGTCTTCA AGCAAATGCA	1200
CACCCAATCC AATTGCCAAT CGGTTCTGAA GATGACTTCC GTGGTATCAT TGAATTGATC	1260
AAGATGAAAG CTGAAATCTA TACTAACGAC CTTGGTACGG ATATCCTTGA AGAAGACATC	1320
CCAGCTGAAT ACCTTGACCA AGCTCAAGAA TACCGTGAAG AATTGATTGA AGCAGTTGCT	1380

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GAAACTGACG AAGAATTGAT GATGAAATAC CTCGAAGGTG AAGAAATCAC TAACGAAGAA	1440
TTGAAAGCTG GTATCCGTAA AGCGACTATC AACGTTGAAT TCTTCCCAGT ATTGTGTGGT	1500
TCAGCCTTCA AAAACAAAGG TGTTC AATTG ATGCTTGATG CGGTTATCGA CTACCTTCCA	1560
AGCCCACTTG ACATCCCAGC AATCAAAGGT ATTAACCCAG ATACAGACGC TGAAGAAATT	1620
CGTCCAGCAT CTGACGAAGA GCCATTTGCA GCTCTTGCCT TCAAGATCAT GACTGACCCA	1680
TTCGTAGGTC GTTTGACATT CTTCCTGTT TACTCAGGTG TTCTTCAATC AGGTTTCATAC	1740
GTATTGAATA CTCTTAAAGG TAAACGTGAA CGTATCGGAC GTATCCTTCA AATGCACGCT	1800
AACAGCCGTC AAGAAATCGA CACTGTTTAC TCAGGTGATA TCGCTGCTGC CGTTGGTTTG	1860
AAAGATACTA CAACTGGTGA CTCATTGACA GATGAAAAAG CTAAATCAT CCTTGAGTCA	1920
ATCAACGTTT CAGAACCAGT TATCCAATTG ATGGTTGAGC CAAAATCTAA AGCTGACCAA	1980
GACAAGATGG GTATCGCCCT TCAAAAATTG GCTGAAGAAG ATCCAACATT CCGCGTTGAA	2040
ACAAACGTTG AAAGTGGTGA AACAGTTATC TCAGGTATGG GTGAACTTCA CCTTGACGTC	2100
CTTGTTGATC GTATGCGTCG TGAGTTCAAA GTTGAAGCGA ACGTAGGTGC TCCTCAAGTA	2160
TCTTACCGTG AAACATTCCG CGCTTCTACT CAAGCAGTG GATTCTTCAA ACGTCAGTCT	2220
GGTGGTAAAG GTCAATTCCG TGATGTATGG ATTGAATTTA CTCCAAACGA AGAAGGTAAA	2280
GGATTGGAAT TCGAAAACGC AATCGTCGGT GGTGTGGTTC CTCGTGAATT TATCCACGG	2340
GTGAAAAAG GTTTGGTAGA ATCTATGGCT AACGGTGTTC TTGCAGGTTA CCAATGGTT	2400
GACGTAAAG CTAAGCTTTA TGATGGTTCA TATCAGGATG TCGACTCATC TGAACTGCC	2460
TTCAAGATTG CGGCTTCACT TTCCCTTAAA GAAGCTGCTA AATCAGCACA ACCAGCTATC	2520
CTTGAACCAA TGATGCTGTG AACAATCACT GTTCCAGAAG AAAACCTTGG TGATGTTATG	2580
GGTCACGTAA CTGCTCGTCG TGGACGTGTA GATGGTATGG AAGCACACGG TAACAGCCAA	2640
ATCGTTCGTG CTTACGTTCC ACTTGCTGAA ATGTTCCGTT ACGCAACAGT TCTTCGTTCT	2700
GCATCTCAAG GACGTGGTAC ATTCATGATG GTATTGACC ACTACGAAGA TGTACCTAAG	2760
TCAGTACAAG AAGAAATTAT TAAGAAAAAT AAAGGTGAAG ACTAATCCGT CCTCACTCTA	2820
GAAGGAAGTC ACTTAGTGGC TTCTTTTGT CTTTAGAAAA TACCTCTAAA TATGGTAAAA	2880
TAGTAGAAGA ATAATGTGAG GAAATGAAT GTCAAATAGT TTTGAAATTT TGATGAATCA	2940
ATTGGGGATG CCTGCTGAAA TGAGACAGGC TCCTGCTTTA GCACAGGCCA ATATTGAGCG	3000
AGTTGTGGTT CATAAAATTA GTAAGGTATG GGAGTTTCAT TTCGTATTTT CTAATATTTT	3060
ACCGATTGAA ATCTTTTATG AATTAAAGAA AGGTTTGAGC GAAGAATTTT CTAAGACAGG	3120
CAATAAGCT GTTTTGAAG TTAAGGCTCG GTCTCAAGAA TTTTCAAATC AGCTCTTGCA	3180

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GTCCTACTAT AGGGAGGCTT TCTCTGAAGG TCCATGTGCT AGTCAAGGTT TTAAGTCCCT	3240
TTATCAAAAT TTGCAAGTTC GTGCTGAGGG TAATCAGCTA TTTATTGAAG GATCTGAAGC	3300
GATTGATAAG GAACATTTTA AGAAGAATCA TCTTCCTAAT TTAGCCAAAC AACTTGAAAA	3360
GTTTGGTTTT CCAACTTTTA ACTGTCAAGT CGAGAAGAAT GATGTCCTGA CCCAAGAGCA	3420
GGAAGAGGCC TTTCATGCTG AAAATGAGCA GATTGTTCAA GCTGCCAATG AGGAAGCGCT	3480
CCGTGCTATG GAACAACGAG AGCAGATGGC ACCTCCTCCA GCGGAAGAGA AACCAGCCTT	3540
TGATTTTCAA GCGAAAAAAG CTGCAGCTAA ACCCAAGCTG GATAAGGCGG AGATTACTCC	3600
TATGATCGAA GTGACGACAG AGGAAAATCG TCTGGTATTT GAAGGGGTTG TTTTGTATGT	3660
GGAGCAAAAA GTGACTAGAA CAGGTCGTGT TTAAATCAAC TTAAAAATGA CGGACTATAC	3720
TTCAAGTTTT TCTATGCAAA AGTGGGTAA AAACGAGGAA GAGGCCCAGA AGTTTGACCT	3780
CATCAAGAAG AATTCTTGGC TCCGAGTTCG AGGGAATGTG GAGATGAATA ACTTCACACG	3840
CGATTTGACT ATGAACGTAC AGGATCTGCA GGAAGTTGTT CACTATGAGC GGAAGGATTT	3900
GATGCCAGAA GGTGAGCGTC GGGTTGAGTT TCATGCTCAT ACTAACATGT CGACTATGGA	3960
TGCTTTGCCA GAGGTGGAAG AGATTGTTGC AACAGCTGCT AAGTGGGGAC ACAAGGCGGT	4020
TGCTATCACC GACCATGGGA ATGTCCAGTC CTTTCCACAT GGCTATAAGG CGGCTAAGAA	4080
AGCGGGAATC CAGCTGATCT ATGGGATGGA AGCCAATATC GTGGAGGACC GTGTCCCTAT	4140
CGTCTATAAC GAAGTGGAGA TGGACTTGTC AGAAGCAACC TACGTGGTCT TTGACGTGGA	4200
AACGACGGA CTTTCAGCTA TCTATAATGA CTTGATTCAG GTTCCGGCTT CTAAGATGTA	4260
CAAGGGGAAT GTTATTGCTG AATTGATGA ATTTATCAAT CCTGGGCATC CCTTGTCAGC	4320
CTTTACTACA GAGTTAACTG GAATTACAGA TGATCATGTC AAAAATGCCA AACCCTAGA	4380
ACAAGTTTTG CAAGAATTCC AAGAATTTG CAAGGATACG GTCCTAGTTG CCCACAATGC	4440
TACCTTTGAC GTTGGCTTTA TGAATGCTAA TTATGAGCGG CATGATCTTC CAAAGATTAG	4500
TCAGCCAGTT ATTGATACGC TGGAGTTTGC TAGAAACCTC TATCCTGAGT ATAAACGCCA	4560
TGGTTTGGGG CCTTTGACCA AGCGTTTTGG TGTGGCCTTG GAACATCACC ACATGGCCAA	4620
CTACGATGCG GAAGCGACTG GTCGTCTGCT TTTCATCTTT ATCAAAGAGG TAGCAGAAAA	4680
ACATGGTGTG ACCGATTTAG CTAGACTCAA CATTGATCTA ATCAGTCCAG ATTCTTACAA	4740
AAAAGCTCGG ATCAAGCATG CGACCATCTA TGTCAAGAAT CAGGTAGGTC TAAAAAATAT	4800
CTTTAAGCTG GTTTCCTTGT CTAATACCAA GTATTTTGAA GGAGTGCCAC GGATTCCGAG	4860
AACGGTTCTA GATGCCCATC GAGAGGGCTT GATTTTAGGT TCAGCCTGTT CAGAGGGTGA	4920

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AGTTTTTGAC	GTGGTCGTTT	CTCAAGGTGT	GGATGCGGCG	GTGAGGTGG	CCAAGTATTA	4980
TGATTTTATC	GAGGTCATGC	CACCGGCTAT	CTATGCACCC	TTGATTGCCA	AAGAGCAGGT	5040
CAAGGATATG	GAGGAACTCC	AGACCATTAT	CAAGAGTTTG	ATAGAGGTTG	GAGACCGCCT	5100
TGGCAAGCCT	GTTCTGGCTA	CGGGAAATGT	TCACTATATC	GAACCGGAAG	AAGAGATTTA	5160
TCGTGAAATT	ATCGTCCGTA	GTTTGGGACA	GGGTGCGATG	ATTAATCGAA	CTATCGGTCA	5220
TGGTGAACAT	GCCCAACCAG	CACCACTTCC	AAAGGCTCAT	TTTCGAACGA	CTAATGAGAT	5280
GTTGGATGAA	TTTGCCTTTT	TGGGAGAGGA	ACTGGCTCGT	AAACTGGTTA	TTGAAAACAC	5340
CAATGCCTTG	GCAGAAATAT	TTGAATCCGT	TGAAGTCGTT	AAGGGTGAAT	TGTATACGCC	5400
TTTCATCGAC	AAGGCTGAAG	AAACAGTTGC	TGAGTTGACC	TATAAGAAAG	CTTTTGAGAT	5460
TTATGGAAT	CCGCTGCCAG	ATATTGTTGA	TTTGGCGATT	GAAAAAGAAT	TAACATCCAT	5520
ACTGGGGAAT	GGATTTGCTG	TGATTTATCT	GGCATCGCAG	ATGCTGGTGC	AACGTTCTAA	5580
TGAACGGGGT	TATTTGGTTG	GTTCTCGTGG	GTCTGTCCGA	TCTAGTTTCG	TTGCGACCAT	5640
GATTGGGATT	ACGGAGGTCA	ATCCTCTCTC	TCCTCACTAT	GTCTGTGGTC	AGTGTCAGTA	5700
CAGTGAGTTT	ATCACAGATG	GTTCTGACGG	TTCAGGATTT	GATATGCCCC	ATAAGGACTG	5760
TCCAAACTGT	GGTCACAAAC	TCAGTAAAAA	CGGACAGGAT	ATTCCGTTTG	AGACCTTCCT	5820
TGCTTTTGAT	GGGGATAAGG	TTCCTGATAT	TGACTTGAAC	TTCTCGGGAG	AAGATCAGCC	5880
TAGCGCCAC	TTGGATGTGC	GTGATATCTT	TGGTGAAGAA	TATGCCTTCC	GTGCGGGAAC	5940
GTTTGGTACG	GTAGCTGCCA	AGACTGCCA	TGGATTGTGC	AAAGGTTACG	AGCGAGATTA	6000
TGGCAAGTTT	TATCGTGATG	CAGAACTAGA	ACGCCTCGCT	CAAGGAGCGG	CGGGTGTCAA	6060
GCGGACAACA	GGCCAACACC	CGGGGGGAAT	CGTTGTTATT	CCGAACTACA	TGGATGTCTA	6120
CGATTTTACG	CCTGTCCAGT	ATCCAGCAGA	TGATGTCACG	GCTGAATGGC	AGACCACTCA	6180
CTTTAACTTC	CACGATATCG	ATGAGAACGT	CCTCAAACCT	GATGTAAGTG	GACATGATGA	6240
TCCGACTATG	ATTCGAAAAC	TTCAGGATTT	GTCTGGTATT	GACCCTAATA	AAATTCCTAT	6300
GGATGACGAA	GGCGTGATGG	CACCTCTTTC	TGGGACTGAT	GTGCTAGGGG	TAACACCTGA	6360
ACAAATTGGA	ACGCCTACGG	GTATGTTGGG	GATTCCAGAG	TTTGGAAACAA	ATTTCTGTACG	6420
TGGAATGGTA	GACGAAACCC	ATCCGACAAC	CTTTGCGGAA	TTGCTTCAGC	TGTCTGGTCT	6480
GTCCACCGGT	ACTGATGTTT	GTTTGGGGAA	TGCTCAGGAT	CTGATTAAGC	AAGGAATAGC	6540
GGACCTATCG	ACTGTTATCG	GTTGTCCGGA	CGACATCATG	GTTTACCTCA	TGCATGCGGG	6600
TCTGGAACCT	AAGATGGCCT	TTACCATTAT	GGAACGGGTA	CGTAAGGGTT	TGTGGCTAAA	6660
GATTTTCAGAA	GAGGAGAGAA	ATGGCTATAT	CGAAGCAATG	AAGGCTAATA	AGGTGCCAGA	6720



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GTGGTATATC GAATCCTGTG GGAAAATTAA GTACATGTTT CCTAAGGCCC ATGCCGCAGC	6780
CTACGTTATG ATGGCCTTGC GTGTAGCTTA CTTCAGGTT CACCATCCTA TTTATTACTA	6840
CTGTGCTTAC TTCTCCATTC GTGCTAAGGC TTTTGATATC AAGACCATGG GTGCCGGCTT	6900
GGAGGTCATC AAGCGCAGAA TGGAAGAAAT CTCTGAAAAA CGGAAGAACA ATGAAGCCTC	6960
TAATGTGGAA ATCGATCTCT ATACAACCTT TGAGATTGTC AATGAGATGT GGGAACGAGG	7020
TTTCAAGTTT GGTAAATTAG ATCTCTACTG TAGTCAGGCG ACAGAGTTCC TCATCGACGG	7080
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ACTGGTGCGG GCGCGTGAAG AGGGAGAATT CCTCTCTAAA ACAGAACTAC GCAAGCGTGG	7200
TGGACTCTCA TCAACCTTGG TTGAAAAGAT GGATGAGATG GGTATTCTTG GAAATATGCC	7260
AGAGGATAAC CAGTTGAGTT TGTGTGATGA GTTGTTTTAA AAAATTGCTT AATAATCTAT	7320
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CTATGGAAAG AGGGTGAGAG TATGTCAAAG ATGAGTATAA GCATCCGTCT GGATAGTGAG	7440
GTTAAGGAGC AGGCCCAACA GGTGTTTAGT AATCTGGGAA TGGATATGAC AACAGCTATT	7500
AATATTTTCC TTCGTCAGGC AATTCAATAT CAGGGATTAC CTTTTGATGT TAGACTAGAC	7560
GAAAATCGGA AGTTGCTCCA AGCGTTAACG GATTTAGACC AAAATCGTAA TATGAGCCAG	7620
TCTTTTGAAT CAGTCTCAGA TTTGATGGAG GACTTACGTG CTTAAGATTG GTTATCATAA	7680
ACAGTTTAAA AAAGATTTTA AGTTGGCTAT GAAGCGTGGT TTGAAGGCAG AATTATTAGA	7740
AGAAGTTTGT AATTTTCTGG TTCAAGAAAA AGAACATCCT GCCAGAAATC GTGATCATTC	7800
ATGACGGCA TCCAAGCATT TTCAAGGAGT TCGTGAATGC CATACCCAGC CAGATTGGCT	7860
TTTGGTTTAT AAAGTAGACA AGTCGGAATT GATTTTAAAT TTGCTGAGGA CAGGCAGTCA	7920
CAGTGATTTA TTTTAATCTA TTTTAAGGGG GTTCTCATGA AACTAAGAAT ATTTGCGGAA	7980
GATAAGCCCG CTAAGAAGGT ATTTGAATAT CAATTAGAAC TTGCTGATCG TACAATTCTT	8040
CTATCGACAG CACTCTTCTC AGGTGCTATT GCTTTAGCAG GAATCTTTTC TGCTTTGAAA	8100
GAAAAATAAA AATAGAAAAG AGAAAACAGA ATGGTTTTAC CAAATTTTAA AGAAAATCTA	8160
GAAAAATATG CGAAATTGTT GGTGCGAAC GGAATTAACG TGCAACCTGG TCACACTTGT	8220
GCTCTCTCTA TTGATGTGGA GCAACGTGAA TTGGCACATC TAATCGTGAA AGAAGCTTAT	8280
GCCTTGGGTG CGCATGAGGT CATCGTTCAG TGGACAGATG ATGTGATTAA CCGTGAGAAA	8340
TTCTCTCATG CCCCAGTGA GCGTTTGGAC AATGTGCCAG AATACAAGAT TGCTGAGATG	8400
AACTATCTCT TGGAGAATAA GGCTAGCCGT CTGGAGTTC GTTCATCTGA TCCAGGTGCC	8460

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TTGAACGGAG TGGACGCTGA CAAGCTTTCA GCTTCTGCTA AAGCTATGGG ACTTGCCATG	8520
AAGCCTATGC GTATCGCAAC TCAATCTAAC AAGGTTAGCT GGACTGTAGC AGCTGCAGCA	8580
GGACTTGAGT GGGCTAAGAA AGTCTTCCCA AATGCTCCGA GCGACGAAGA AGCAGTTGAT	8640
TTCCTTTGGG ACCAAATTTT CAAAACCTGC CGTGTCTACG AAGCAGATCC TGTTAAGGCT	8700
TGGGAGGAAC ATGCAGCCAT TCTCAAGAGC AAGGCCGATA TGCTTAATAA GGAGCAATTT	8760
TCAGCCCTTC ACTACACAGC GCCAGGAACA GATTTAACAC TTGGTTTGCC AAAGAACCAC	8820
GTTTGGGAAT CAGCTGGTGC TGTCAATGCA CAGGGCGAAG AATTCTTGCC AAATATGCCA	8880
ACAGAAGAGG TCTTCACAGC GCCTGACTTC CGTCGTGCAG ATGGTTATGT CACTTCTACA	8940
AAACCGCTTA GCTACAACGG AAATATCATT GAAGGCATTA AGGTGACCTT TAAGGATGGA	9000
CAAATCGTAG ATATCACTGC TGAGAAGGGT GATCAGGTTA TGAAAGACCT TGTCTTTGAA	9060
AATGCGGGTG CGCGTGCCCT GGGTGAATGT GCCTTGGTAC CAGATCCAAG TCCAATTTCT	9120
CAGTCAGGCA TTACCTTCTT TAACACCCTT TTCGATGAAA ATGCGTCAAA CCACTTGGCT	9180
ATCGGTGCAG CCTATGCGAC TAGCGTTGTT GATGGAGCGG AGATGAGCGA AGAGGAGCTT	9240
GAAGCTGCAG GGCTTAACCG TTCAGATGTT CACGTAGACT TTATGATTGG TTCTAACCAA	9300
ATGGATATCG ATGGTATTCG TGAGGATGGA ACGCGGGTAC CTCTTTTCCG TAATGGGAAT	9360
TGGGCAAATT AAGGAGATAA TATGTTAGGA AGTATGTTTCG TTGGTCTCCT AGTGGGATTT	9420
TTAGCAGGTG CTATGACCAA TCGTGGAGAG CGAATGGGAT GTTTTGGAAT AATGTTTCTC	9480
GGTTGGATCG GAGCCTTTCT AGGTCACCTG CTCTTTTGAA CTTGGGGGCC AGTTTATCA	9540
GGAACAGCTA TTATCCCAGC GATTTTAGGA GCCATGATTG TTTTAGCTAT TTTTGGAGA	9600
CGAGGAA	9607

## (2) INFORMATION FOR SEQ ID NO: 81:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 14231 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 81:

CTACAAGATA ATTCCAGCTA TAACATCCGC TATAATAGTA AGAGCGAGCT CTATGATAAG	60
GCTCATTAGT TTCACCTCCT CTCACGAACC CATAGGAACG TAATCGGTAA CCGATGACAA	120
AAATAGTATA CCACAATACA TTTAGATCAT CAAGGTCAC TAAATCTTGA AATATCAGAT	180
CTAAGAGAAA AATCTTTAAA ATCAGAAAAA CGCATAATAT CAGGTGTGCA AAAACTTGAT	240

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ACTATGCGTT TTATTGTGGG AAGGTTTACT CCATTTTCTC CTGAAATTGA GTTTTTGTCC	300
AGCCTCTGTT TTTAGGGTTG CTAAGAAAAT AATGTCATGT GGTGAATATT TGTAAATCAG	360
TCAGCAGACA GAACGATACT CTTCGAAAAT CTCTTCACAT CATGTCAGCT TCGTCTTTCC	420
GTATATATGT GACTGACTTC ATCAGTTCTA TCTACAACCT CAAAACAGTG TTTCGAGCTG	480
ACTTGATCAA TTTTCAAATC TGTACTTTGA GCAAGCTGAG ACTAGCTTCC TATTTGATTT	540
TCATTGAATA TCAGAAACCC ATTCTCCATC AAATAATTCTG ACTGCGTCTA ATAATTTTGT	600
ATCTGGCAGC GTGTCTGAAA TAAAGGTTGT GTATTTGGAG AGGGGATTAA TTTTAAAAAA	660
TCCAGTCTTG TAAAATTTAG AACTATCAAT CAGTAAGATG GTTTCATGGG CTTTGTCAAT	720
AATATTCTTT TTTGAAATAG CTTGGCTGAG AGAAGCTTCA TAAACATATT GGTCAATCAAT	780
ACCTCTTGCT GAACAAAATG CTAAATCGAT ATTAATAATGA TCTAATAAAG AATTTTCCTT	840
ATCATAGTTG ACCACGGAAC AGGATTGATG TTTGACCTCG CCAGATGTGA TAAAGATTTT	900
GGAGCTATCT TTAACAGTTT CAGATAGGGT TTGTGCAGTA TGTAAACCAT TTGTAAAAAT	960
AATCAAATTA TCAAGTTCAG AAAGATAGGG ACAGAGTTCC TAGACAGTAG TACTAGAATC	1020
TAGATAGATA CACATACCAG ACCGAATAAA GTCTTTAGCG AGACTAGCGA TTAGTCTTTT	1080
TTGCCTAGTA CTTTCTCCTT CACGTATTTG ATGAGAAAGT TCAATTGTGT TCATAGAGGA	1140
CAGGGTCACG TATCCGTGCT TTCTTTTGAT AAGACCTTGA TTTTCTAAGA AAATTAAATC	1200
ACGACGTAAG GTAATTGTGC TGGAGAAAGT GATTTCTGCC AGCTCTTTTA CGGCAATTCT	1260
TTTTTCTTTT TTGATAATTT CAATCAATTC AAGTACACGT TCATCTTTTA TCATAAGCTC	1320
CTCCTAATTT ATCATTTCOA CTATATTATA GCACAAATTG GAGGAATTTG AATTATTTTT	1380
ATGAATATTG GGTTAACATT TGAACATTAT TCAAGTAAGC GTTCACATAT TGAAAAAATA	1440
AAACGTGGGG ATTATAATAA AGTTAATCma GGACGAAGAG AGAAGAAAAA TGGAAAGCGGT	1500
TTTAGCAATA GATTTAGGTG CGACTTCTGG AAGAGCAATC GTTGGTTACC TTTCTGAAAA	1560
TAAACTAGTA ATGGAAGAAA TAAATCGCTT TTCTAATCTA CCTATTAGAG TAAAAGGGCA	1620
TTTATCTTGG GATATTGACT TTCTACTAGC TAAAATTCTT GAAAGTATCC GCTTGGCTAA	1680
TACTAGTTAC AAGATTTTAT CTATCGGTAT TGACACATGG GGAGTTGATT TTGGACTGAT	1740
TGATAATGAA GGTAAAGCTGT TATTACAACC TGTTCATTAT CGTGATGAAA GAACAAAGGG	1800
AGTGTTAAAG GAAATATCTG AAATGACTGA ATTAGAAAAA CTGTATTCTAG AGACAGGAAA	1860
TCAGATTATG GAGATAAATA CCTTGTTCCTA ACTCTTTAAG GCACGTCAAG AATCTCCTGA	1920
CTCTTTCTAT AAGACCAATA AGATTCTTTT AATGCCAGAT TTGTTAATT ATCTCTTGAC	1980

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AGGTAAGTTT GCTACAGAAA AAAGCATTGC TTCAACAACCT CAATTATTTG ATCCTAGGAG	2040
TCAAAATTGG AATCAGAATA TCTTAAAACCT ATTTGAATTG GATTCATCTT TACTTCCTGA	2100
AATTGTTTCA GAGGGAAATG TTCTTGGAAG GATAAAAGAG GAGTATGGTT TAGGCGATAT	2160
TCCTGTTGTG AATGTTTGTA GTCATGATAC AGCAAGCGCG ATTGTCTCAG TACCTAAGAC	2220
AGAAGGTAGT TTATTTATTT CATCAGGTAC TTGGTCTTTG GTTGGAGTGG AACTTACTTC	2280
ACCGATTCTT ACTACCGAAT CCTTCAGTTA TGGATTTACA AATGAAGTCG GTAAAGATGG	2340
AGTGATTACA TTTCTGAAGA ATTGTACAGG GTTGTGGATC ATAGAGGAAC TAAGACGTTT	2400
ATTTGAACGA AGAGGGAAAG CCTATTCTTT TGATGATATT AGGACAATGG TGGAGAAAGA	2460
AAAAGAAAAT CTTCTCTGA TTGATACTGA ATCAACTGAA TTTGCAACAG AATCTGATAT	2520
GCACAAGACT TTGACAGAAT ATCTAGCTTA TCATCATGAA ACTAGAGACT GGACAGATGG	2580
ACAACTATTT AAGATTGTTT ATGAAAGCCT AGCTGAAACG TATAGGAAAG CGATAGAGTT	2640
ACTAGAAGAA CTAACCTATA AGGTTTATAA GAGGATATAT GTGATTGGAG GAGGTGCTAG	2700
AGCCAGTTAC TTTAACCAAA TGATTGCTGA TAGAACTGGT AAAGAGGTTC TTACAGGTTT	2760
GACTGAGGCT ACAGCTGTGG GGAATATTGT TGTGCAGCTC ATAGCTATGG GACAATTAAA	2820
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CCAAAAGAAT TAAAAAGATT GAGAGTTTGT AAATTTGCCT CCTCCCCCT TCTTAGCTTT	2940
TGTGCAGGAA GGGGGGATAA TTGGTGAATT GAAAAATATT TAGTGTTTTG ATATGAGGAG	3000
GACAAGGATG TCAGATGTAA AACAAGAATT AATTAAATAT GGTAAGAAGC TAGTAGAAAC	3060
AGATTTGACG AAAGGAACAG GTGGGAATCT CAGCGTTTTT GATCGTGAAA AACAATTGAT	3120
GGCAATTACC CCGTCGGGTA TTGATTTCTT TGAATCAAA GAATCCGATA TTGTAGTGAT	3180
GGATATTAAT GGAAATGTTG TAGAGGGAGA ACGCTTGCCA TCTAGCGAAT GGTATATGCA	3240
TTTGATTCAA TATCAAATC GTGATGATAT CGATGCAATT ATCCATGCTC ATACAACTTA	3300
TGCAACAGTA TTAGCTTGTC TCAGAGAACC ACTTCCAGCG AGTCATTATA TGATTGCAGT	3360
GGCAGGGAAA GATGTTCCGG TAGCTGAGTA TGCAACATAT GGCACGAAAG AATTGGCTGT	3420
GAATGCAGCT AAAGCAATGG AAGGTCGTAG AGCAGTTTTA CTAGCGAATC ATGGAATTTT	3480
AGCAGGTGCA CAAAATTTAT TGAATGCATT TAATATTGTT GAAGAAGTTG AATATTGTGC	3540
AAAAATTTAT TGTTTAGCTA AGAATTTTGG AGAGCCAGTA GTTCTTCCTG ATGAGGAGAT	3600
GGAAATTGATG GCAGAAAAAT TAAAAACATA CGGTCAGAGA AAATAGGGAG GATATTAATG	3660
TTAAACATA TACCGAAAAA TATTTCTCCA GATTTATTGA AGACTTTAAT GGAAATGGGA	3720
CATGGAGATG AAATAGTATT AGCTGACGCG AATTATCCTT CTGCCTCATG TGCAAATAAG	3780

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CTAATTCGTT GTGATGGTGT AAATATTCCA GAATTATTAG ATTCCATTCT GTATTTAATG	3840
CCATTAGATA GTTACGTCGA TAGTTCAATT CAGTTTATGA ACGTTGTTTC GGGTGATGAT	3900
ATTCCTAAGA TATGGGGTAC CTATAGACAG ATGATTGAAG GTCATGGTAC AGATCTTAAA	3960
ACGATTACTT ATCTTAGAAG AGAAGACTTT TATGAACGTA GTAAGAAAGC TTATGCTATT	4020
GTTGCTACAG GAGAACTTC ACTTTATGCT AATATTATCC TTAAGAAAGG AGTAGTTGTT	4080
GAAAGAGAAA ATGTTCAATA GAGGAATTTT AGTTGCCAGT CATGGTAATT TTGCTAGCGG	4140
AGCTCTCATG ACCGCAGAAA TGTGTTGTTGG TGAGACAACA AATGATAGAG TTAGGACATT	4200
AGGTTTGATG CCTGGAGAGA ATATTGTAGA GTTTGAGCAT TATTTTAAAA ATCAAGTGGA	4260
TGAAGTGTTA GACTCAAATC AAGAGGTTAT CGTTTGGACT GACTTGATTG GAGGAAGTCC	4320
TAATAATGTG GCTTTGTCAC GGTTTTTAAA TTTGGATTCA GTTGATATTG TAACAGGGTT	4380
TAATATCCCT CTCCTAGTGG AATTAATATC AAGTTATGAT TCAAAAATCA ATTTAGAAGA	4440
AATGTTCAC AATGCTCAAA ATAGTTTGTT TAATGTTAAA CAACAACTTA ACGTAGAGGA	4500
GGAAGAAGAT TTATGTCTAT AGAGTTTGTT CGTATTGATG ACCGTCTGGT ACATGGTCAA	4560
GTTGCTACTA CGTGGCTAAA AAAGTATGAT ATTGAGCAAG TTATCATTGT TAATGATCGC	4620
ATCTCAGAAG ATAAACACG ACAATCTATT TTAAAGATT CTGCACCGGT AGGTTTAAAA	4680
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AGAACAATGC TGATATATAC AAATCCAAAA GATGTGTATG ATTCTATTGA AGGAAATTTA	4800
AAATTCGAGT ACCTCAATGT AGGACAGATG ACTAAAACGG AGGAAAATGA AAAGGTAACG	4860
GGAGGTGTAG CTCTAGGTGA AGAAGACAAA TATTATTTTA AGAAAATAGT TGATAAGGGA	4920
ACGAGAGTTG AAATTCAAAT GGTTCCTAAT GATAAAGTTA CAATGTTGGA AAAATTTTTA	4980
TAAAAATAAT TTAAGGAGGT ACAGTATATG CTATTCACAC AAGCATTACT GGTGACATTA	5040
GTTGGGATTA TTGCCACTAT TGAATAAAT GGACCGTTAT TTATGATTCA CCGTCCGTTA	5100
GTTACAAGTG CAATGGTTGG CTTAGTATTA GGAGATTTC CCAAGGTGT TCTTATTGGT	5160
TCAGCTCTTG AATTAACTTG GCTCGGTGTA ACAGGTATTG GAGGTTATAC TCCACCAGAT	5220
ACTATTTTCTG GTGCGATTAT TGGTACTGCA TTTGGTATTT TATCTGGTCA AGGAGAACT	5280
GCTGGTATCG CTATAGCAGT TCCAATTGCA GTTGCTACCC AACAGTTGGA GTTCTTGCA	5340
AAAATTTTAG ATGTTTATTT TGTGAAAAAA GCTGATAATG ATGCTAAAAA CGGAGATTAT	5400
TCAAAGATCG GTTTTTATCA TTATTCAAGT TTGGTTTTAA TCACGTTATT TAAAATTGTA	5460
CCAAATTTCC TAGCTATTAT GCTTGGAGGG GAATATGTGG CAGACTTCTT TGCTAAGGTT	5520

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CCACCAATCG TTATGCAGGG ACTTAACTCT GCAGGTGCTT TACTACCTTC AATTGGTTTT	5580
GGTATGCTTT TAAATATGAT GCTCAAGAAA AATATGTGGG TATTCTTGTT GATTGGATTC	5640
ATTTGTTCTG TGTATGGAGG AATGTCAACC ATTGGGATCT CACTAGTTGG TATTGCGGTA	5700
GCATACTTCT ACGATATGAT TGGAAGCAAA CCACAAGAAA CAACTTCAAG TAGTGATGTT	5760
GAGGAGGATC TTGATCTATG ATGAATAATA AAGTAACTAA AGTTGAACTT AAAAAAGTTT	5820
TCAAACGAAG TTTTATGTAT GGTTCCTCAT GGAAGTATGA GAGAATGCAG AACCTAGGTT	5880
TTCTATATAC AATTCTTCCA GTATTGAAAA AACTATACCC AGACAAAGAT TCAGCTTCTC	5940
CTGCAATGAA ACGTCACCTT GAGTTTTCAT ATACTCATCA AACAGCGGCA CCATTTATTC	6000
TTGGAGTTAC TTCCGCTATG GAAGAACAAG AAGGAAATGA AGGTGCAGCT TCAATTACTG	6060
GTATTAAAGT TGGCTTGATG GGGCCACTGG CTGGTCTAGG AGATAGTTTG TTCTGGCTGA	6120
CACTAGTTCC TATCTGTTTT AGTATTGGTG CGTCTTATTC TAAAGACGGC GGTGCTTTAG	6180
GTATCTTTAT CGCCTTAATA TTGTTTAATA TTATTAATAT TCCTGTTAAA TATTTGGTT	6240
TGAAATATGG GTATACTAAG GGTTCCTAGT TTATCCAAGA AAATAATACA AAAGGAACAT	6300
TGAATCGCGT TACGAGTATG GCGACAGCAT TAGGGCTAGT ACTAGTGGGT GGTTTGATTC	6360
CATCAATGGT TGGTATTAAT TTTGGATTAG AATTTAAGCA GGGGGAAGTT GTTATTTCTG	6420
TTCAAGAAAT GATTACAAAA TTAATTCAG GATTTATCCC TATGGCTTTG ACTTTATTAA	6480
TGTGTAAATT AATTAGAAAA GGAAAGAATC CGGTTGTAAT AATCTTTAGT GTTATGGCTA	6540
TTGGAGTTAT TCTAGTTGTT TTAGGAATTT TGAAGTAGTA GAAAGTGTGG AGGTGGTATT	6600
TGGGATATCA CCTCCATTTT GGAAGAGAGG TAAAGAGTGA AATTATGGTA TAAGAAAGCT	6660
GGCGCAAATT GGAATGAAGC CTGCGCGATT GGGAACGGTC ATTTAGGTGG TATGATTTAT	6720
GGTTCAGCTA CAAAAGAATG TATTCAACTA AACGATGAGA CTATTTGGTA TAGAGGAAAG	6780
TCAGATAGAA ATAATCCAGA CTCACTATTG CATCTTAAAA AAATTCGGGA ATATCTTTTA	6840
GATGGAGAAA TTCAGAAAGC CGAAGAATTG ATAAAGTTAA CAGTGTTTGC TACCCCAAGA	6900
GATCAAAGCC ACTATGAATT ACTTGGGGAA CTTTACATTG AGCATATAGA TATTCAGTCT	6960
TGTGCTCTTT CATTGTATGA AAGAGAGCTA GATTTAGATA CAGCTATTTT TAATGTTGTG	7020
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AATATTTTAT GTTGCCGTAT AGTGTCATCA GTTCAAAACA CATTAAATTT AAACATTAAT	7140
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ATGTCGGCCT CTGCTGGAGG TAGAAAAGGT GTTCAGTTTA AAGTAGTATG TCATTCTAAG	7260
GTTACGGATG GTGAAGTAAC TGTATTGGGA GAGACAATAG TTATTCGGAA TGCTACAGAG	7320

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GTATTTCTTT ATCTCAAATC AATGACGGAT TATTGGGGAA ATATAGATAT TTCTTCTCTT	7380
CAGGGAGAAT TTAGTAGTAT TGATTACTTT ACAGAAAAAG ATGAACATGT AAAAAAATAT	7440
CAGGAGCAAT TTAATAGAGT TGATTTTAAA CTAGACTATA GTAAAGGTTG TCTTAGCATT	7500
CCAACGAATC TACTTCTTGA AAACACTAAA AAGTATAGTA ACTACTTGAC TAACTTGTTA	7560
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CTTCAAGGAA TATGGTGTGA TGAATTAAAT CCAATTTGGG GTTCTAAATA TACGATTAAT	7680
ATTAATACTC AAATGAATTA TTGGATGGTA GGTCCATGTG ATTTACCAGA AGTAGAATAT	7740
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CAATCTCATG CCATGGGGGC TGCAATTTGG GTATTAAC TAACCATGGTT ATGTACTCAT	7920
ATTTGGGAAC ACTATTTATA TTCCAAGAT GAGCGTATTC TTACGGAACA TTTTGAAATG	7980
ATAAAGAAG CATTTCTTTT CTTTGAAGAT TATTTATTTG AGGTGGATGG CTAATTGATG	8040
ACAGGTCCAA GTGTCTCACC GGAAAATAAA TATCGCTTAA AAAATGGTAT TGAAGGAAAT	8100
GCTTGTCTAT CATCTACAAT TGATAATCAA ATTCTAAGAT ATTTTGTGA TTCATGCATT	8160
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AATGAGATTG ATATTCATAA AACTCCGGAA TTAGCAGAAG CAGCTAAAAT CACTATCAAT	8400
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CATTTTTTTG CGAGACTATA TCAAGGTGAA CCTGCTTATA ACCAGATTAA TGGTTTGTTA	8580
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TTATGTTTTG GATTGTTAGC AGGAGTTAAG GCTGATAATC GTGTTCAAAT GAGAACGACG	9060

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ATTAATAATG AATCGCCATT GTTGCTTTCT CCGTTGTATG GCAATGATAA TGGTAACGGA	9120
TTATGGTGGG GGAACACATT GAAGGGAGCA TGGGAAGCTA TTCCTGAAGA TGTAAAGCCA	9180
TATGCAGCGA TTGAACTTCA TCCTGCAAAA GTCTGTAAAC CAACAAGTTG TATTCCACGA	9240
GATACGAAAG AATGAGAGA ATGGTATGTC AAGATGTTGG AGGAAGCTCA AAGTCTAAAC	9300
ATTCCAGTTT TCTTGGTTAT TATGTCGGCT GGAGAGCGTA ATACAGTTCC TCCAGAGTGG	9360
TTAGATGAAC AATTCCAAAA GTATAGTGTG TTAAGAGGTG TTTTAAATAT TGAGAATTAT	9420
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TATGGAGCGC ATTTTATCTG GCATGATCAT GAAAAATGGT TCTGGGAAAC TATTATGAAT	9540
GATCCGACAT TCTTTGAAGC GAGTCAAAAA TATCATAAAA ATTTGGTGTG GGCAACTAAA	9600
AATACGCCAA TAAGAGATGA TGCGGGTACA GATTCTATCG TTAGTGGATT TTGGTTGAGT	9660
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TCAATGATTG CTATGGAAT GATGAATGTA TATACTGGGG GAGGCACACT TTATAATTC	9840
GAATGTGCCG CGTATACAT TATGACAAAT GATGTACCAA CTCCAGCATT TACTAAAGGT	9900
ATTATTCCTT TCTTTAGACA TGCTATACAA AATCCAGCTC CAACTAAGGA AGAAGTTGTA	9960
AATAGAACAA AAGCTGTATT TTGGAATGGA GAAGGTAGGA TTAGTTTATT AAACGGATTT	10020
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ATTCTTCCTG TAATACATGA GAAAATTGAT AAGGAAAAGA TTTCATCTAT ATTCCCTAAT	10140
GCAAAAAATT TGAATAAAAA TAGTGAGGAA TTGTCTAGTA AAGTCAACTA TTTAAACTCG	10200
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ATTTATAATA GTAATGCTAA TATCAATAAA AATCAGCAAG TAATGTTGCC TATGTATACT	10320
AATAATACAA AGTCGTTATC GTTAGATTTG ACGCCACATA CTTACGCTGT TGTAAAGAA	10380
AATCCAAATA ATTTACATAT TTTATTGAAT AATTACAGGA CAGATAAGAC AGCTATGTGG	10440
GCATTATCAG GAAATTTTGA TGCATCAAAA AGTTGGAAGA AAGAAGAATT AGAGTTAGCG	10500
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CTTACATTAA AAGGGCATA TGGTCATAAA CCTCAGATAA ATATAAGTGG CGATAAAAAAT	10620
CATTATACTT ATACAGAAAA TTGGGATGAG AATACCCATG TTTATACCAT TACGGTTAAT	10680
CATAATGGAA TGGTAGAGAT GTCTATAAAT ACTGAGGGGA CAGGTCCAGT CTCTTTCCCA	10740
ACACCAGATA AATTTAATGA TGGAATTTG AATATAGCAT ATGCAAAACC AACACACAA	10800
AGTTCTGTAG ATTACAATGG AGACCCTAAT AGAGCTGTGG ATGGTAACAG AAATGGTAAT	10860



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TTTAACTCTG GTTCGGTAAC ACACACTAGG GCAGATAATC CCTCTTGGTG GGAAGTCGAT	10920
TTGAAAAAAA TGGATAAAGT TGGGCTTGTT AAAATTTATA ATCGCACAGA TGCTGAGACT	10980
CAACGTCTAT CTAATTTTGA TGTGATTCTA TATGACAATA ATAGAAACGA AGTTGCTAAG	11040
AAACATGTTA ATAATTTGTC GGGTGAATCT GTTAGTCTAG ATTTCAAAGA AAAAGGAGCA	11100
AGGTATATTA AAGTTAAAT ACTAACGAGT GGAGTGCCTT TGAGTTTAGC AGAAGTAGAG	11160
GTTTTTAGAG AATCAGATGG TAAGCAATCT GAAGAGGATA TAGATAAAAT AACAGAAGAT	11220
AAAGTAGTCT CTACAAATAA GGTAGCTACT CAAAGTTCAA CCAATTATGA GGGTGTAGCT	11280
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TGGTCGTCTG CAAGGTGTAC GCCAATCACT TGAAGTGCAA ACAATGAACA TGGCTAAAAG	12240
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AAAATCAAAT GTTTGCGCAA CAATTACAGT TACACCATGC TGGTGTTATG GTAGTCAAAC	12420
TATGGATATG TCTCCAGATA TTCCTCATGC TATTTGGGGA TTAAATGGGA CAGAACGCCC	12480
AGGAGCTGTC TATCTTGACG CTGTACTAGC TTCACATGCT CAAAAAGGGA TTCCAGCCTT	12540
TGGGATTTAT GGAAGAGATG TTCAGGAAGC TAGTGACACA GATATTCAG AAGATGTCAA	12600

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AGAAAACTT TTACGCTATG CGCGTGCAGC TCTTGCAACT GGCTTGATGA GAGACACTGC	12660
TTACCTATCA ATGGGTAGTG TTTCGATGGG GATTGGTGGT TCTATTGTAA ATCCGGATTT	12720
CTTCCAAGAA TACTTAGGAA TGCGAAATGA ATCGGTAGAT ATGACGGAGT TCACGCGCCG	12780
TATGGACCGT GGTATTTACG ACCCTGAAGA GTTCGAACGT GCGCTCAAAT GGGTGAAAGA	12840
AAACGTAAAA GAAGGATTCG ACCATAACCG TGAAGACCTT GTTTTAAGCC GTGAAGAAAA	12900
AGATAGACAA TGGGAATTTG TTATTAAGAT GTTCATGATT GGACGTGACT TAATGGTTGG	12960
TAACCCAAGA CTTGCTGAAC TTGGTTTGA GGAAGAAGCG GTTGGTCACC ATGCTTTAGT	13020
AGCTGGTTTC CAAGGTCAAC GTCAGTGGAC AGACCATTTT CCAATGGGG ACTTTATGGA	13080
AACTTTCCTC AATACTCAGT TTGACTGGAA TGGTATTCGA AAACCATTTG TATTTGCGAC	13140
AGAGAATGAT TCACTAAATG GTGTGTCTAT GCTCTTTAAT TATCTATTAA CAAATACTCC	13200
ACAAATCTTT GCTGATGTGC GTACTTATTG GAGCCCAGAG GCTGTTAAAC GTGTAACGGG	13260
ACATACTTTA GAGGGTCGTG CTGCAGCTGG CTTCTTACAT CTAATCAACT CTGGTCTTG	13320
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GGAGTTGGAA GAAAGTGAAG TGCAGGCTAT GCTTGAAAAT ACAGACTTCC CACCAGCAAA	13440
CCCGGAATAC TTCCGTGGAG GAGGATTCTC AACTCGTTTC TTGACGAAGG GGGATATGCC	13500
AGTAACAATG GTACGTCTCA ATCTTCTAAA AGGGGTTGGT CCAGTGCTAC AAATTGCAGA	13560
AGGTTACACA CTGAACTTC CTGAAGATGT TCACCATACT TTAGATAATC GTACAGATCC	13620
AGGATGGCCA ACTACTTGGT TTGCTCCAGC TTGACAGGA AAAGGTGCTT TCAAGTCTGT	13680
CTATGACGTC ATGAATAATT GGGGAGCTAA TCACGGAGCC ATAACATATG GACACATTGG	13740
AGCAGACTTG ATTACCTGG CTTCTATGTT GAGAATTCCT GTCAATATGC ATAATGTACC	13800
TGAGGAAGAT ATCTTTAGAC CTAAAAATTG GTCCTTATTT GGAACAGAAG ATCTAGAATC	13860
AGCAGACTAT CGTGCATGTC AGTTGTTGGG GCCACTACAT AAATAAACT TGTTTATATA	13920
GGAGGTGAAC TTACGTCCTT CCTATCCTTT TAAAAAGATT TGTAAACAA TTCACAAA1A	13980
ATTGAAAACG AATACAAAAA GTAATATAAT GATGTTAAAT AGATAGCGCG GAGGCGCAGG	14040
AGGAAAATTA TATGGCTATA TTTTATGTTT CGGCAGTCAA CCTTATTGGA AAAGGTGTTG	14100
TAAATGAAGT GGGTCCTTAT ATCAAGGAAC TTGGCTATAA AAAGGCACTT TTGGTGACAG	14160
ATAAGTACAT CGAAGGCAGT GATATTTTAC CTAAGACTTT AAAACCACTG GATACAGAAG	14220
GAATCGAATA T	14231

(2) INFORMATION FOR SEQ ID NO: 82:

(i) SEQUENCE CHARACTERISTICS:

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(A) LENGTH: 16995 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 82:

AGTTCTCTTA ACTTTTTTAG GATGGCATT CCGCTCTCA GGTACTCATT TTCTGCTgAA	60
GACGTTCTAA TTCTGTCCTC TCTTCAGGTC TCGTTTTTGG CTTACGTCCC ATTTTAGGTA	120
CTCTCCCTCT TGTMTTCTCA ACAATAGTAT ACCCGTTTTT CCTGTATTGT GCTAGCCAGT	180
TAAGAAGTAT CGTACGACTT GGGAGACCGT ATTCAAGAGA AACTCTATCT TTAGTCCAGC	240
CTTCATGTCA GACTTTATTA CTCATTTCTT GTTTTAAATC AGGAGAATAG TAACGATTTT	300
TTCTTTTTTT GACGAACCTT ATTCGTAAC GATCAATCAA TTTAATCATG TACCTAATAT	360
TAGAATTGCT TATCCCAAAT TTATTTGAAA GCTTCTCTAA GCTATATCCT TGTTTTCTAA	420
GTTCATAGAT CTGAACCTTA TCATCATAAG TTAGTTTCAT AATAAAAACA CCCCCAAAGT	480
TAGATTTTTT CTGTCTAACT TTTGGGGTGT AGTTCATGTA CACCTGATAT GATGCGTTTT	540
ATAATTTTTA AGCCTTTTTG CCCAGCCTCG TCAAAAGTAA TGTTTTGACA CAAAATCTGT	600
GACAAAACCT TAGTTTTAAA GGTTTTAAAC TTTGTATATA CTAGTTTTAA GAAAAGGAGG	660
ATGATCTAAT GGAAGAAAAA GTATCATTGA AAGTCAGGGT TCAAAAAC TA GGGACATCGC	720
TTTCAAATAT GGTATGCCC AATATTGGAG CATTATTGCG TTGGGGAGTA TTGACTGCCC	780
TCTTTATCGC TGATGGCTAT CTGCCAAATG AACAGTTAGC TACTGTTGTT GGTCTATGT	840
TAACGTATTT ATTGCCAATC CTGATTGGTT ACACAGGTGG ATATATGATC CATGGCCAAC	900
GTGGTGCCGT TGTAGGAGCT ATTGCTACTG TTGGTGCAAT CACAGTTCT AGTGTTCTTA	960
TGTTTATCGG AGCTATGGTA ATGGGCCCAC TGGGAGGATG GACTATCAAG AAATTTGATG	1020
AGAAGTTCCA GGAATAAATT CGTCCCGGAT TTGAAATGTT AGTTAATAAC TTCTCAGCTG	1080
GTCTCGTTGG TTTTGCAATTA TTGCTTTTGG CTTTCTACGC AATCGGTCCA GTCGTATCGA	1140
CTCTTACTGG AGCTGTTGGG AATGGTGTG AGGCTATTGT CAATGCTCGC CTCCTTCCTA	1200
TGGCTAATAT TATCATCGAA CCGGCTAAAG TCCTTTTCCT CAATAATGCC CTCAATCATG	1260
GCATTTTAC TCCTCTGGGA GTAGAACAGG TAGCTCAAGC TGGTAAGTCA ATTCTCTTCC	1320
TATTGGAAGC TAATCCTGGA CCAGGTCTGG GAATCTATT ACCTTATGCT GTATTCGGTA	1380
AAGGTTCTGC TAAATCTTCT TCTTGGGGGG CAATGGTTAT TCATTTCTTC GGAGGGATTC	1440
ATGAAATTTA CTTTCCTTAT GTTATGATGA AGCCTACTCT ATTTTtagCT GCTATGGCAG	1500

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GAGGTATCTC	TGGAACCTTT	ACTTTTCAAC	TCTTAGACGC	TGGTCTTAAA	TCTCCAGCTT	1560
CACCAGGTTT	TATTATTGCG	ATTATAGCTA	CGGCGCCAAA	AGGTGTTTGG	CCCCATCTAA	1620
ATGTTCTTTT	AGGTGTTTTA	GTGGCAGCAG	TTGTTTCTTT	CCTTGTAGCA	GCCCTTATTC	1680
TTTCATGCAGA	CAAGTCAACT	GAGGATTTCG	TCGAAGCTGC	TCAGGCGGCT	ACCCAAGCAG	1740
CTAAGGCTCA	GTCTAAAGGT	CAGTTAGTAT	CAACTTCTGT	TGATGCAGTT	GTTTCGACAG	1800
ACTCAGTGGA	AAAAATCATT	TTGCGCTGCG	ATGCTGGTAT	GGGAAGCTCT	GCTATGGGAG	1860
CTAGTATTCT	TCGAGATAAG	GTTAAAAAAG	CAGGTCTAGA	GATTCCAGTA	TCTAATCAGG	1920
CAATCTCAAA	TTTGCTTGAT	ACACCAAAAA	CATTAATTGT	TACTCAGGAA	GAAGTGACAC	1980
CAAGAGCTAA	AGACAAGAGT	CCAAGTGCTA	TTTCATGTTT	TGTTGATAAT	TTCTTAGCGT	2040
CCTCTCGTTA	TGATGAAATT	GTAGCTTCAT	TAACAGGAGC	TTCTCCAATA	GCAGAAATTG	2100
AAGGAGATAT	ACCAACTTCA	GCACCAGTAG	ATAGTCAGGA	AAGTGACCTT	AACCATATTG	2160
ATGCTGTAGT	AGTTCCTTAT	GGTAAAGCAC	AGGGAAGTGC	AACTATGGGC	TGTGAAACGA	2220
TTGCGGCTAT	TTTTAGAAAC	AAGAATATTC	GTATTCCAGT	TTCTACTGCC	AAAATTTTCT	2280
AAATAGGTGA	ATTTAATTCT	AAAAACATAA	TGATTGTAAC	AACTATTTCT	TTACAGGCAG	2340
AAGTGCAGCA	AGCAGCACCG	AATTCTCAAT	TTCTTATTGT	GGATAGTTTA	GTAACAACAC	2400
CAGAATATGA	CAAAATGGCT	GCTAGAATGT	ACAAATAGAA	CTAGAGGTTT	CTAAATTACG	2460
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TTCAATGCAA	GATATGACTG	AAATCTTACA	GGTTTCATCT	AGAACAATTT	ATCGAACTTT	2580
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CTATATTTTG	ACTGGAGAGT	TGGATGATTT	GCCGACAGAA	CTTGAAGTGT	TAGTTGAGTA	2700
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CACCAATGAA	GCATTGCAAG	AGTGCACGAA	AGTCAGTAAT	GTAAGTATTA	TTTCAAGGAT	2820
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TCGGATTTCT	GGTGATTTCAG	TTGGTAAGAG	AAGATTTTTG	GCTATTTTAC	TGACAAACTG	2940
TATCTCAGTA	GCAGATTTTT	CAACCGGTAA	TTTTGGGAGC	TTTGATATTT	TAGAAGCAGA	3000
TAGAACTGGG	CTGGCCAGTC	AGATTGTTAA	TAAGCAACTG	TCAGGTTTTT	CAGATATGGA	3060
TGCTAGGATG	AAGATGTTTT	TTGCGATCTT	GTTATCTCTT	ATAGGTCAGG	AGCAAAACAT	3120
TGAAAATTCA	CCTAATACTA	GTAAGCAGGC	TTTGGAAATT	TCTCAAAAAA	TTTTTCAAGC	3180
TTACTCTAAG	CAGACTGCAC	AATTTTATAG	TATTCAGGAA	ATTATCTATT	TTGCGAGCAT	3240
CTTGATGAA	TTAATCATT	AACGTCAGGA	CAATCCGCTC	TTTACGGAGA	AATTTGATGG	3300

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TGAATTTTTC TACAATATTT CAAATCTGAT TGATACGGTT TCCATGTATA CCAAGATTGA	3360
CTTTTTTAAG GACAAGGTTT TATTCAATTT TCTTTTCCAT CATATTCGGC TCAGTTTAGG	3420
CGTCCCTATC CTTTTTCAGG GTGAAAATTT GCCAGAATCT ATCCAGATTT TAGTTGAAAG	3480
GAATAAATTT CTTTATACAG TCATCAGTCT TTTAGTGAAT GATATTTTTC CGAAATATCT	3540
TCATACAGAG TATGAGTATG GCATGATTGC CCTACATTTT ATCTCTAGCT TAGGCCGTAG	3600
TCCAGAGATT TATCCAGTCC GTGTTTGCT TTTAACGGAT GAACGTCGGG TCACTAGAGA	3660
TTTATTAGTC AGTAAATTA AGAGTGTTC TCCTTTTGTA GAGTTGATAG ATATTCAATC	3720
TCTAGTAGAT TACCACAGTA TTGATCTCAG TCAGTATGAT TATATTTTAT CTACCAAGCC	3780
GCTGACTAAT CAGGAAATCG ATGTAATTC TAGTTTTCCA ACCGTCAAAG AATTGCTTGA	3840
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CGCTCCAGAG AAAAGTTATG ACTTGCAAGA TTATTTAATA TCTAGTAGTC AGCTTTTGAG	3960
TCAATTCGAG TTGGTTCAAT TGGAGAATAA TCAATCATT GAGCACACGG TAGAACAAAT	4020
CATCCAATAT CAGAAGAATG TGAGTGACAG AGCTTACCTA ACAAGAAAAT TGTTATCTCA	4080
CTTCCAGAAT AGTCCTATGG CTATTCCTAA TACTGGTCTG GTGCTTTTAC ATAGTCAGTC	4140
TAGCAAAGTA ACAACAAATA GTTTTACTAT GTTTGAACTC AACTACCTA TCTCCGCATT	4200
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AGCTATCTGT TTACATGGGT AACTTTATCG CCATACCGCA TGGAACAGAT GCAGCAAAAA	4620
ATGATGTCCT CAAGTCTGGT ATTACAGTCG TTCAAGTCCC TAGAGGGGTT GATTTTGGA	4680
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ACTTAGAAAT TATTCAGAAA ATTTCTATCT TCTGTGCAGA TGAGATAAT GTTCTTAAAC	4800
TAGCAGATGC TCACTCAAAA GAGGAAGTAT TGCGCTTATT TGATGCTGTT GAATAATTGA	4860
ATTTAGTCAT TTGTCATCTA GTATATATGT CCCTCAAATA GGAAAAGGAG AAATTGAATG	4920
AAACATTCTG TTCATTTTGG TGCCGGTAAT ATCGGTCGTG GTTTTATAGG TGAAATTCTA	4980
TTTAAAAATG GTTCCATAT TGATTTTGTG GATGTCAATA ATCAGATAAT TCATGCTCTG	5040

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ACTAATGTGG CTGGCATTAA TAGCAAAGAA CATCCTGAGC AAGTCATTGA AGCGATTCAA	5160
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CTAGCCAAAG GAATCGAAGC TCGCCGAGTT GCAGGAAATA CACAGGCATT GGATGTTATG	5280
GCCTGTGAAA ATATGATTGG CGGGTCTCAA TTTCTTTATC AAGAAGTCAA GAAATATTTA	5340
AGTCCGGAAG GTTTGACATT TGCTGATAAC TACATAGGTT TTCCAAATGC TGCAGTAGAC	5400
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GAATGGGTCG TGGAAACCAA GCGTCTTAAA AATCCAGATT TACGTCTAAA AGATGTGCAT	5520
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GCAACTTCAG CTTACATTGG TGCGCATTAT GGTGCCAAGA CAATTTTGGG AGCTCTTCAA	5640
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GATTTCCATG ACAGGAACCT TTATTGATAC CCTCATCATT TGTACTCTAA CTGGTTTGAC	16980
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(2) INFORMATION FOR SEQ ID NO: 83:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 28473 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 83:

CCGGGGCTTT TGTAGTATAA TAGAGATACG TTTTGAAAGT AGGAGGTATC TATGGACTTA

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GAAGAAGGCC GTTGCCTTTA TCCCTGGTGC AGCCTTTGGA CGTTACGGGG AAGGCTACGT	1140
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GAGCATTATC ATGAGGATAA GAGACGTTGT CATCTCAATC CCAATATCCC CTATCTGCTC	1800

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AAATCAAAGA	AATTTATTGA	TTCCCTAGCA	GACTGGGGAC	AATTACTAAA	AGAGGAAAAG	1980
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ATACAGGTGC	CTTGTGGCA	GCAGGATTCT	TCATCGTGGG	TCGTATCAAG	AATATCGACC	2340
GTCTGGACT	CATGTCTACC	TTGCCTACCG	TTGATGGAAA	AGGTTTGGAC	ATGCTAGACC	2400
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AGAAGAGTTG GTCAACGGCA TTGCCCACAT CACAGGTGGT GGCTTTATCG AAAATGTCCC	15540
TCGTATGTTT GCAGATGACC TAGCTGCTGA AATTGATGAA AGTAAAGTTC CAGTGCTTCC	15600
AATTTTCAAA ACCCTTGAAA AATACGGTCA GATTAAACAC GAAGAAATGT TTGAAATCTT	15660
CAATATGGGT GTGGGACTTA TGTTGGCGGT CAGCCCTGAA AATGTAGAGC GTGTAAAAGA	15720
ATTGTTGGAT GAAGCAGTCT ATGAAATTGG TCGCATCGTC AAGAAAGAAA ACGAAAGTGT	15780
CATTATCAAA TGA AAAAAAT AGCGGTTTTT GCCTCTGGTA ATGGCTCAAA TTTTCAGGTG	15840
ATTGCCGAAG AATTTCCAGT GGAGTTTCTC TTTTCAGACC ATCGTGATGC CTATGTGCTT	15900
GAGCGTGCAA AGCAGCTCGG CGTTCTGTCC TATGCTTTTG AACTCAAGGA GTTTGAGAGC	15960

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AAGGCAGACT	ACGAAGCAGC	CCTTGTCGAA	CTCTTGGAAG	AACACCAGAT	TGACTTGATT	16020
TGCCTAGCAG	GCTACATGAA	AATCGTTGGA	CCAACCTTAT	TGTCGGCTTA	TGAAGGTCGG	16080
ATTGTCAACA	TTCATCCAGC	CTACTTGCCA	GAATTTCCAG	GAGCTCATGG	GATTGAGGAT	16140
GCTTGGAATG	CTGGCGTGGG	TCAGTCTGGT	GTGACCATTC	ACTGGGTGGA	TTGGGTGTG	16200
GATACAGGCC	AGGTCATCAA	ACAGGTTCTG	GTGCCACGAC	TAGCTGATGA	TACCATTGAC	16260
AGATTTGAAG	CTCGCATCCA	TGAAGCAGAG	TACAGGCTGT	ATCCGGAAGT	AGTGAAGGCT	16320
CTATTTACAG	ATTGACTTTT	TGATGATTCA	TATGATATCT	TTGATTTTAA	ATTGGAGTCA	16380
GTGTTTGTG	AAGACGGCTT	CAAACGGAGG	TATTTGTAAT	GTTAGAATCT	AAAAAAACAA	16440
CTCGATATGT	ATTTTATGTC	TATCTGATGT	TATTAACCTG	GGGAATCTTA	TTTAAGTTTG	16500
AAACAAATCC	TGAATTTATA	GCATTTTCT	TAGCTCCAAG	GTATATCAAT	TGGATTCCAT	16560
TTTCAGAACC	ACTAATAGTC	GATGAAAAA	TTGTTTTTGC	TGAAATGTTA	TTTAATCTGA	16620
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GAATAGTCGG	GACAGGTTTC	TTGATTAGTT	TATTGTTTGA	GTGCTTACAG	TATATTTTAG	16740
CAATAGGTAT	AACAGATATA	ACGGATTGTA	CTTTAAATAC	GCTAGGTGTC	TGTGTAGGCT	16800
TACTGATTTA	TCAAATTTTT	ATAAGAGTGT	TCAAATCACA	GACTAGAAAA	TGGATCAATA	16860
TCTTAGGTAT	GCTTAGCCTT	GGTTTTGCTT	ATCTTGTTTT	ACTGTTACTG	CATTTACTTA	16920
GTGTTTAACT	AATGATTAAG	AAGGAGAATA	TAATGACTAA	ACGCGTCTTA	ATCAGCGTCT	16980
CAGACAAAGC	GGGCATTGTT	GAATTTGCCC	AAGAACTCAA	AAAACCTGGT	TGGGAGATTA	17040
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TCCACGGAGG	GCTTCTCGCT	CGTCGTGACT	TGGATAGCCA	CTTGAAGCG	GCTAAGGACA	17220
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TCACAGCTCA	AGTGGGTGAA	AGCAAGCCTG	AAAAACTCAC	TTTGACTTAT	GACCTCAAGC	17580
AACCAATGCG	TTACGGTGAG	AATCCTCAAC	AAGACGCGGA	CTTTTACCAG	AAAGCTTTGC	17640
CTACAGACTA	CTCCATTGCT	TCAGCCAAAC	AGCTCAACGG	GAAAGAATTG	TCATTTAATA	17700
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GTGTAGTCGG TGGACTTCTC GTGCAAAATC AAGACGTGGT CAAGGAAAGC CCAGCTGACT	18120
GGCAAGTGGT GACTAAACGT CAGCCAACGT AGACAGAAGC GACTGCTCTT GAGTTCGCTT	18180
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GCATCCAAGG GCTACCCGCT AGACTATGAA AGGGGCGTTG ACTTGCCAGC CAAGACAGAA	19680
GGCGATGTCA TCACCTACTA TGCAGGGGCT AAGTTTGCGG AAAATAGCAG AGCACTGCTC	19740
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CAAGACTGCG ACTGGTGGCT ACGATGGTCA TGGACAAAAG GTTATTCGTT CAGAAGCAGA	21240
CTTGGAAGCA GCCTATCGCG TAGCAGACTC AGCAGACTGC GTCTTGAAG AATTTGTCAA	21300



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AGTTCAGGAA AATATCCACC GCAACAATAT CCTGTCTAAG ACCATCGTAC CAGCCCGCAT	21420
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AATCGCCCCA CGACCACATA ACTCTGGGCA CTATTCTATT GAAGCCTGTG ATTTCTCTCA	21600
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GCTAGGTATT GAGGTGATGC GAGGTTATAT CCCCACCAGC CTTTAGACCA GTAAGAAATC	24840

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AATTGATCGC CGCGTAGACC CAATTTTTCC AAGTAAACAA GCTTGTTCCT CCGTTCAATT	28200
GAAAGAACAG TTACCTTATC ATCTTTAGCA TTGAAGAGTT CAATATCTGA AAACCTTACA	28260
AGCTTGTGTT TGCGTGCACG TGAAACGAAG GTTCCTTTTC CTTGTTGGCG GACAATATAG	28320
CCATCTTTGG CAAGGTCGTT TAAGGCGCGA ACAACTGTGA TAGAGCTGAC ATCGTACATT	28380

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GAAATGAGTT CTGCTTCAGT GTAAAATTTA TCTCCACTGC TAAACTGCCC AGAGATGATT 28440

TTATTTTTTA ATTCTCTTT TATGTATTGA TGG 28473

(2) INFORMATION FOR SEQ ID NO: 84:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 6749 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 84:

CCTGATGGGT GGTATGCGAG GATACAGTTC TGAAAATCCG CGTTACTTAA TTAATGGACG 60  
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 AGAAACTGAT GTGCAAAATGC CACAACAGGC ATCAGGTATG AAACAAGGCG GTGTCTTGC 180  
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 ACGAAACAAG GAAATTCAAG AAACATCTGA AATCCTCTCA CGCCGCACCA AGAACAATCC 300  
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 GCCAGCTCTC TCTCGTGGAG AATTGACAGT GATTGGGGCA ACAACTCAAG ACGAATACCG 660  
 TAACACCATC TTGAAGAATG CTGCTCTTGC TCGTCTTTT AACGAAGTGA AGGTCAATGC 720  
 TCCTTCGGCA GAGAATACTT TAAAATTCT TCAAGGAAT CGTGACCTCT ATCAACAACA 780  
 CCACAATGTC ATCTTGCCAG ACGAAGTCTT GAAAGCAGCG GTGGATTATT CTGTTCAATA 840  
 CATTCTCAA CGTAGCTTGC CAGATAAGGC TATTGACCTT GTCGATGTAA CGGCTGCTCA 900  
 CTTGGCGGCT CAACATCCAG TAACAGATGT GCATGCTGTT GAACGAGAAA TCGAAACGGA 960  
 AAAAGACAAG CAAGAAAAAG CAGTTGAAGC AGAAGATTTT GAAGCAGCTC TAAACTATAA 1020  
 AACACGCATT GCAGAATTGG AAAGGAAAAT CGAAAACCAC ACAGAAGATA TGAAAGTGAC 1080  
 TGCAAGTGTC AACGATGTGG CTGAATCTGT GGAACGAATG ACAGGTATCC CAGTATCGCA 1140  
 AATGGAAGCT TCAGATATCG AACGTTTGAA AGATATGGCT CATCGCTTGC AAGACAAGGT 1200  
 GATTGGTCAA GATAAGGCCG TAGAAGTTGT AGCTCGTGCT ATCCGTCGTA ACCGTGCTGG 1260

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TTTTGATGAA GGAAATCGCC CAATCGGCAA CTTCCTCTTT GTAGGGTCTA CTGGGGTTGG	1320
TAAGACGGAG CTTGCTAAGC AATTGGCACT CGATATGTTT GGAACCCAGG ATGCGATTAT	1380
CCGTTTAGAT ATGTCTGAAT ACAGTGACCG CACAGCTGTT TCTAAGCTAA TTGGTACAAC	1440
AGCAGGCTAT GTGGGTTATG ATGACAATAG CAATACCTTA ACAGAACGTG TTCGTCGCAA	1500
TCCATACTCT ATCATTCCTT TGGATGAAAT TGAAAAGGCT GACCCTCAAG TTATTACCCT	1560
TCTCCTCCAA GTTCTAGATG ATGGTCGTTT GACAGATGGT CAAGGAAATA CAGTAACTT	1620
CAAGAACACT GTCATTATTG CGACCTCAAA TGCTGGATT TGGCTATGAAG CCAACTTGAC	1680
AGAAGATGCG GATAAACCAG AATTGATGGA CCGTTTGAAA CCCTTCTTCC GTCCAGAATT	1740
CCTCAACCGC TTTAATGCAG TCATCGAGTT CTCACACTTG ACTAAGGAAG ACCTTTCTAA	1800
GATTGTAGAT TTGATGTTGG CTGAAGTTAA CCAAACCTTG GCTAAGAAAG ACATTGACTT	1860
GGTAGTCAGT CAAGCGGCTA AAGATTATAT CACAGAAGAA GGTACGACG AAGTCATGGG	1920
GGTTCGTCTT CTCCGTCGCG TGGTTGAACA AGAAATTCGT GATAAGGTGA CAGACTTCCA	1980
CTTGGATCAT TTAGATGCTA AACATCTGGA AGCAGATATG GAAGATGGCG TTTTGGTTAT	2040
TCGTGAGAAA GTCTAAGACA GAATTTTGAG GATAAAAAAG AAGGAGCCAG CTGAAAAAAA	2100
CTGGTTCTTT TTTAGGTACG ACAGGCATGT CGTATAGTAG AACTGTATTA TTCTAGTTTC	2160
AATATACTAT AGTAGCTCAG AAGTCGGTAC TTAACCGTGC TATATCAAAA CCAGTCCTGG	2220
AAAAACGTGG ACTGGTTTCG TGTTTGGATT ATTACCTTGA ACGACATGCG TTAAGGTTA	2280
GTTGAACCGC CGTATGCCGA ATGGTACGTA CCGTGGTGTG AGAGGGGCTA GAGATTATCC	2340
CCTACTCGAT TTAAATCAC ATGACGTTCA AAGGCATCAT CTGAAATCCC TTGTTCCAAG	2400
ATGAGTTTGG CCCATTCTTT AGCAGAGAAG AGGCTGTGGT CTTGTAGTT TCCGCAAGAT	2460
TCGATGGTTG TCCCTGGGAC ATCTTCCCAA GTAGTAGTTT CAGCGATTTT CTTGAGCGAA	2520
TCCTTGATAA CAGCTGCGAT TTAGCACTG GTGTGACGTC CCCACATAAT CATGTGGAAG	2580
CCTGTGCGGC AACCAAATGG TGAACAGTCA ATCATGCCGT CAATGCGGGT ACGGATGAGT	2640
TTGGCTAAGA GGTGCTCGAT AGTGTGAAGG CCGGCAGTAG GGATAGAGTC TTCGTTTGGT	2700
TGCACCAAGC GAATATCATA ATTGGAGATG ATGTCTCCTT TTGGTCCTGT TTCTTCCCA	2760
ATCAAGCGAA CATAGGGTGC TTTGACAATG GTGTGGTCAA GTTCAAACT TTCGACAATA	2820
ACTTCTTTTG ACATGGTAAA TCCTTTCAGT TTTCTTCTCT CATTATATCA TAAAGGTTGC	2880
TCCTGAGACA GAGAGAAAAC CTCTCCGAGG CTGGAGAGGT TGAAATCTTT ACTTACGATA	2940
TAAGCGGTGC TATTGGTAGT ATGGGTCAAA GGTACGTTG ATACCCAGTT TACGAAGGAC	3000
ATCTTGTCT TCATCAGTCA AGATGATGGT TGAGTGGGCT TCGCTTCCTT TGAGGTTGCC	3060

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GAGTTCTTCC ATAGCGCGGG CAGCATCAGG ATTTTCTGTA GCTGTGATAG CAAGTGCAAT	3120
CAGGATTTCA TTTGAATGAA GCGGTGGATT GCGGCTACCG AGATGATCGA TTTTAAGACC	3180
TTGGATTGGC TTAACAACTT CAGGCTCGAT TAGTTTACT TCTTTAGCGA TGTCAGCTGA	3240
TTTTTTGATG GCGTTGATCA AGGCAGCGGC TGTAGGACCA AAGAGTTCTG AGTTCTTACC	3300
AGTGATGATT TCCCCATTG GCAATTCAAA GGCTAGGGCT GGTCCACCAG TTTCTTCTGC	3360
TTTTTGGCGC GCAACGACAG CAACCTTACG GTCTGCAGGT GTGATACCGA GGTCTTCAT	3420
GAGCAACTCA ATTTTCTTGA CGGCAGCTTC GCCAACTTTT TCAGCTTTGA AGTCAAGAAC	3480
TGTTTGATAG TAACGGCGGA TGATTTCTTG TTTAGAAGCT TCGACAGCGG CCTCGTCATC	3540
TGTAATAGCG AAACCAACCA TGTTGACACC CATATCTGTC GGTGAAGCGT ATGGTGATTT	3600
TCCGAGAATA CGTTCCAACA TCGTTTTGAG CACTGGGAAG ATTTGATAT CACGGTTGTA	3660
GTTGACAGTG GTTCTCCAT AGGTTTGAAG ATGGAAGGGG TCAATCATGT TGACATCATC	3720
AAGGTCAGCT GTGGCAGCTT CATAAGCCAA GTTAACTGGA TGATGAAGGG GAAGATTCCA	3780
AACAGGGAAG GTTCAAATT TAGCGTAGCC AGATTTGATG CCATTGATTT GGTCGTGGTA	3840
CATATTGGAC ATACACGTTG CCAATTTTCC AGAACCAGGT CCAGGAGCGG TTACGACAAT	3900
CAAGTTGCGA CTGGTTTTGA TGTAGTCGTT TTTGCCCATG CCTTCTGGGG AAATGATGTG	3960
ATCCATATCC GTCGGATATC CTTGATTGG ATAATGAAGA TAAGAATCAA TTCCGTTTTT	4020
CTCAAGTTGA TTGCGGAAGG CATCTGCAGC GGGTTGGCCA GCGTATTGTG TAATGACAAC	4080
GGAACCAACA AAAATCCCTA ATTCATTGAA TTTATCAATC AAACGAAGAA CTTCTTGGTC	4140
ATAAGAAATG CCTAAGTCGC CACGTGCTTT GGAATGTTC AATGTTGCTAG CATTAAATGGC	4200
AATCACAACC TCAACCTGCT CTTTCAATTC TTGCAAGAGC TTGATTTTGT TGTCAGGTTT	4260
ATAACCAGGA AGGACACGAG CAGCGTGGAA ATCTTCTAAC ATTTTACCGC CAAACTCTAA	4320
GTAGAGCTTG CCGTCAAATT GGTTAATGCG CTCCAAAATA TGGTCGCGTT GTAAATTCAA	4380
ATATTGTTCA GAACTAAAAG CTTGTTTTTT CATTTTTTTA CCTCTGGACT CTATTATAAT	4440
AAAAAATTGG AAGTTAGGAA ACTACGGAGC TAAAAAGAA ATTAAAAAGA TTAAGCAAAC	4500
GCTTGACAAA AATTTTAAAA AGTGCTATCA TAGACTATAG ATTATGAAAA TAATGAGGTA	4560
AACAGATGCA AGAAAAATGG TGGCACAATG CCGTAGTCTA TCAAGTCTAT CCAAAGAGTT	4620
TTATGGATAG TAATGCAGAT GGAGTTGGTG ATTTGCCAGG TATTACCAGT AAGTTGGACT	4680
ATCTAGCTAA GCTAGGAATC ACAGCAATTT GGCTTTCTCC CGTTTATGAC AGCCCTATGG	4740
ATGATAATGG CTATGATATT GCTGATTATC AAGCGATTGC GGCTATTTTT GGAACCATGG	4800

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AGGACATGGA TCAGCTGATT GCAGAAGCTA AGAAGCGTGA CATTTCGTATC ATCATGGACT	4860
TGGTGGTCAA TCATACCTCA GATGAACATG CTTGGTTTGT CGAAGCCTGT GAAAATACTG	4920
ACAGCCCTGA GCGAGACTAC TATATCTGGC GCGATGAACC CAATGACCTA GATTCTATCT	4980
TTAGTGGGTC TGCTTGGGAA TACGATGAAA AGTCAGGTCA ATACTATCTC CACTTTTCA	5040
GCAAGAAACA GCCGGATCTC AACTGGGAAA ATGAAAAACT TCGCCAGAAA ATTTATGAGA	5100
TGATGAACTT CTGGATTGAT AAAGGTATTG GTGGTTTCCG TATGGATGTT ATTGACATGA	5160
TTGGCAAAAT TCCTGACGAG AAGGTAGTCA ATAATGGTCC TATGCTCCAT CCCTATCTCA	5220
AGGAAATGAA TCAGGCGACC TTTGGAGATA AGGATCTCTT GACAGTAGGG GAGACTTGGG	5280
GAGCAACTCC AGAGATTGCC AAGTTCTACT CTGATCCAAA GGGGCAAGAA TTGTCTATGG	5340
TCTTCCAGTT TGAACATATC GGTCTTCAGT ATCAGGAAGG TCAGCCTAAA TGGCACTATC	5400
AAAAAGAGCT GAATATCGCT AAGTTAAAAG AAATCTTCAA CAAATGGCAG ACAGAGTTAG	5460
GAGTTGAGGA CGGCTGGAAT TCCCTCTTCT GGAACAACCA TGACCTCCCT CGTATTGTCT	5520
CAATCTGGGG AAATGACCAA GAATACCGCG AAAAACTGTC CAAAGCCTTT GCAATCTTAC	5580
TTCATCTCAT GAGAGGAACT CTTTATATCT ACCAAGGTGA GGAGATTGGG ATGACCAACT	5640
ATCCGTTTGA AACACTGGAT CAAGTAGAAG ATATTGAATC TCTCAACTAT GCGCGTGAGG	5700
CTCTTGAAAA AGGTGTTCCG ATTGAAGAAA TCATGGACAG TATCCGTGTT ATTGGACGTG	5760
ACAATGCCCG TACCCCTATG CAATGGGACG AGAGCAAAAA CGCTGGTTTC TCAACAGGTC	5820
AACCTTGGTT GCGGTTAAT CCAAAATTACG AGATGATCAA TGTCCAAGAA GCGCTGGCAA	5880
ATCCAGATTC TATTTTCTAT ACCTATCAGA AACTGGTCCA AATTGCAAG GAGAATAGCT	5940
GGCTAGTTTG AGCTGACTTT GAATTGCTTG ATACGGCTGA TAAGGTCTTT GCTTATATAC	6000
GTAAGGATGG CGACCGTCGC TTCCTAGTTG TGGCTAACTT GTCCAATGAA GAGCAAGACT	6060
TGACAGTAGA AGGAAAAGTC AAATCTGTCT TGATTGAAAA CACTGCGGCT AAAGAAGTAC	6120
TTGAAAAACA GGTCTTGGCT CCATGGGATG CTTTCTGTCT GGAATTACTA TAAATATTTT	6180
TTGCAGAAAA ATTTAAAATT GAAATCGTAT AAAACAAGG GAGGACTGTA TAAAAGACAG	6240
AAATCCTTTG TTTTTATAA CCAAAGTTTA TAACTTTCA TTCTTGAAAT TCAATTAACT	6300
TTACAAATTC CCACTATTAA GGAGAAAGAA GATGAACATA AAGAAGCGTG TCCTTAGTGC	6360
AGGCCTGACT TTTGCATCTG CTTTGCTTTT ACCCAAATCA TTCATACCTC TCTCAACTAG	6420
ATGTAACCTA CAAAACCCCT GACCTCATGA GCCACTTTCT TCCTCCTCAT GAGGTCAGTT	6480
TTACTTTCTG CTGTTCCAGT ATCGTTTTTC CTCGCTAGAT TTCCTCAAAA GGGCAGACTC	6540
CTCCCTTGGT GCGTCACACG ATTTTTCAT CTCGACTGTT CTTTAATGCA TCATTAACGA	6600



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CGCTTTTCTT CTAGGTGGTT CATAAGGAAC AGGAAGATTC AGGTTGACTT TTCTAATCCT	6660
AGAATAAAGT GCTGAAAACA ATTCGGAATA GGCATAGAGA CTAGACAATT TGAGGAGCTG	6720
CTTGCCTCCT GTTCGAACAC ATTTTCCGG	6749

(2) INFORMATION FOR SEQ ID NO: 85:

## (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1842 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 85:

TCTACCCATG GACTTTGAGG CATTCAATTGT TCCATCTTCT AGTGGCGAAT CTTTGTATAC	60
AAACGATTCA ATTCACCTGG ATAGTGAAAC TCTCCCGCAA ACATTTTTCT GGTAACTCA	120
ATCCAGCTGA TATTTCTTTC AGCCAAAATA ATGGACAAGT TCTCCCAAAA TCGTTCAGCC	180
ATATTGCTTC TCCTTTAGTT AGATAAATAA TGTGTTTGGC CCATGTAAAT CAATTGTTTC	240
GTATCTCTTG GCAATAGAGC TCTAGCCTCT TCCAAATTCA GACTTGGATA AACTCGCTTA	300
TTTGAAACCG CAAGAGGAAG TCTGATGGT AGTTCAGGAT TTTTAAAAAT TATCTCAACG	360
AAATCCGTGA ATCTTAGATT GTCACGGTTC TTAAATCGTA ATAAATTGGG AGATAAAAAAC	420
TCAAAACAAT CTGAAGAATA GCTCATCATC TCAATTAATT TGTCTTTGT CATTTCAGAA	480
ACTGAATGAC AAGATACCTC TATGCCATAG TTTTGAAGA AATCTAAAAG AAGTTGATTT	540
CTTTGTCTAT TTTTACTTAG ATAGAGATCA ATCATGGGAG ACCTCCCAAA GATTCCGGTTC	600
CATTTGATAT TCTGACACGA TTAAGGAATC TAATAAATTA AGGAATCTAA TAAATTTGCG	660
AAGTTAATCG GTTTCTGTG TTCATCATAA GCTTTTACAG TTACTTGGGT TGTAAGTATT	720
CCCTCTTTTC CCTCGGCTCG ATAGCCTTGT CCATATAAAA CAAAAACGAG ATTTTGATGA	780
TCATCTACAA AGGCATCAAC CCCATTCTTT ATGTCTTGAC TTTCAAGGAA TTCCATAACG	840
TTTTGAAGAT AGGATTCGTA AAATAGTGGG TAGTTATGTT TTTTATGGTA ATCATCTAAA	900
AATGTCACTT CAAACTCACA TGGAGAGTAA TTTTGACTTT GAACAGCCTA AAAGTGCCAT	960
CAAAATTGAA TTGGAATAAA TCAAATAAAT AGCCCCATCC TCATCAATCC AACCTTTGCT	1020
CAAAGACAAC TCCAACCGAT CTTTAAAAAC TGAGTAAACC ACCTTAACCT CCAGTTTCAT	1080
ATTCTTATAC CGTTCACCTC CAAATAAAAG TTTGGGGAGC TTATAATAAC GCTCTGATGT	1140
CTGATATTGA TTAGCGGTAA TACGCTTCAT TATTGTCCCT CCAAGACTAA AATTCCAACA	1200

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TTTCCAAATT CATCAAATCG GATTAAACCT ACTTGTTCCA TTTCATCAAC TAACTGAGTT	1260
GCTTTTACCC AAATCATTCA TACCTCTCTC AACTAGATGT AACTTACAAA ACCCCTGACC	1320
TCATGAGCCA CTTTCTTCCT CCTCATGAGG TCAGTTTAC TTTCTGCTGT TCCAGTATCG	1380
TTTTTCCTCG CTAGATTTC TCAAAAGGGC AGACTCCTCC CTTGGTGCGT CACACGATTT	1440
TTTCATCTCG ACTGTTCTTT AATGCATCAT TAACGACGCT TTTCTTCTAG GTGGTTCATA	1500
AGGAACAGGA AGATTCAAGT TGACTTTTCT AATCCTAGAA TAAAGTGCTG AAAACAATTC	1560
GGAATAGGCA TAGAGACTAG ACAATTTGAG GAGCTGCTTG CGTCTGTTC GAACACATTT	1620
TCCCACCACG TGAAGAAAAA GATGCGCGAA GCGTTTGATT GTTAAAGTTT GGAAGTCACC	1680
TCCAGCTAGA TGTGTGAGAA AAAGATAGAG ATTGTAGGCG ATACAGCTCA TCATCATACG	1740
AACTTCGTTT TTGATTAAGG TTGAACTATC CGTTTTATCG CCAAAAAATC CCTCCTTCAT	1800
CTCCTTGATG AAATTCTCG CTTGACCACG TCCACGATAA AG	1842

(2) INFORMATION FOR SEQ ID NO: 86:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 19390 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 86:

TCATCTTTAT CTCCTCGAAA TTTTCTAATA TAGCCATTAT AACAGAATTT TGTGAAAAAT	60
CCTATTATAG TAAATCACTA TTTCAGTATA AAAAGAAAAA ACGAATCAGA CGATTGCTC	120
TTCTTAAAAAT CTGAAATAG CTTTCCAGAA AGGATTAGCC GATTTTGTGC AGATTGAGCA	180
CTGCATCGTG ACTCATCAAG ACTTGACCAT ACTCTTGTA GACTGAGCGA CTGATATCAC	240
TATCGTCTGC AAACCTCGGC ATACGGGCCA ACAGCCAAGC TGGATATGGG CTTGGATGAT	300
TTTCAATATC CACTAAAATG GTCAAATAAT AGCGCTCGTT CATTTTGTAG AGTTCAGAAG	360
TTTCCATTTC AAAAGTCACT GTCTTGGCAA AAGCTACCAA GTCAGCCAAC TTAGCAAAAG	420
AAAGGATGTA GTAGATGTAA GGTTCCTTCT TACTCTCAGC TTCTTGTTCA GCCTGCTCTT	480
GCTCTTCTTC CTTGACTTCA ACTTGCTCAA GAGATTGAAT GGCTTCGATA TCATCCTTGG	540
TTTTGTCTGC GATGCTTTTT TCCAGGGTTT TGATAAATTC ATCTGGAGAC ATTTGAGCCA	600
ATTCTTCCAT ATCTGGCAAA TCCGATAAGT CTTCAAAATC TAGATTTTGG TCAATCTTTG	660
ACTTGGTCAC AAAGACATCT ACCTTATCAG GTTTTGGAGT CACACGGAAG CTCAACATGC	720
CTGTATCCAG AAAGCTATCA GGCATCTCTA GCTCATCCAA GATAGCATAA AAGAACTCTT	780

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CTGTTTTTTC	TTGAGGAACG	AGAAAGTCAG	CAATCTCCAT	TCCACGATCC	ATCAAATCCT	840
CTAAAGATAT	CGTGATTTTT	AAAGTTGTAT	CACTAATTTG	TTTCATTTTC	ATTGCTAGTA	900
ACCTCATACT	TTCAGTTCTA	TCTATTATAC	TAGATTTTTA	CGATTTTATC	AAAAGAAGGC	960
TCCTCTATAC	GGATAGATTT	TCCCTAGGGT	CTTCTATAG	GAGACTCCAA	AAGAAAATTT	1020
CTGCAGACAG	ATAGAAAAAG	CCTTCAAAAT	CGGCTAAGAG	CCGACTTTGA	AGACCTTATA	1080
CATCAGAATA	CTTATAATTT	AAAGGTTGCT	ACACCGAGGA	TAGAACGATT	TAAGTTTCTG	1140
AGAATTTGAA	GACTTTGCTC	AAATTTCTTA	TAACGAGTCA	CTCCGTACTC	TTCAACAAGA	1200
AGGACTGTAT	CTCTTTCCAA	AAGAGATGAT	ACATCCTGTA	AATCTACAAA	ATGCATTCCT	1260
TTTAAAGCTT	CTTGACTCTG	TTTCAATTTA	TCTAAGATAG	CTTTATTTGA	GCTAACGATG	1320
GTCAATTCCT	GTCCAGTATT	TTTGTATGAC	AAAACATCTG	CTAGGTTAGC	AATTGTTGTA	1380
ATCTCTGTTA	CAAAATCAAT	TTGATACTGA	GAAAAATCAC	CTACTCTATT	GATTGTTGGA	1440
TTAAAGAGAT	AAACTAACAC	ATTTCCCATC	ACAACCAAAA	TCACACAAAC	CACTCCAATA	1500
ACAATAAAC	GAAGAATCAG	ATTTTTCACA	TTTAAGCCAA	GCGCTGTTTC	ACCATTTGCG	1560
TTCAATTCCT	TAGAGTTGAT	GGTTTCCAGT	TTTTCAATTT	TCACATTTGC	ATAGGCATGT	1620
TTAAATTTCT	CAATCAACCC	ATCAATTTTT	TTCTCTAACA	AGTTATTGGC	ATCTTTACTT	1680
GATGTCAAAA	TTTTCACACC	AACCCCTGCA	TCGTCAATCA	TATAGTAGAC	GGTCAATTTT	1740
TTCCACCAAT	AGTCATTCTG	TGAATTTTTC	AAGGTTGTTT	CTGTCGTGTC	TAATTCACCTG	1800
GCAATTTTTT	TCAACTCACT	GGGTTCTACA	TCATTGAAAA	GATAAGCTCC	ATTCAAATTA	1860
CCATCAATCA	ATTTCCCATC	AAAATCACTA	TAACCACCAA	TTTGATGATT	CAAAATCGTT	1920
TTGTCCGACT	CTTTTGGAGG	AGTGATTTTA	TAGATAAGAT	AAGTTGAATA	ACTTGTGTA	1980
TCTTTGACAG	TGTTTTTATT	CCTAACTGCT	TTAATTGTAA	ATGGTACAGC	AATGAGAGCA	2040
AATAAAGCGA	TGAGAGCTAA	AATATTTGCT	TTTCGCTTTT	TATAAAGATT	TGCAAACAAA	2100
TCAGCTACTG	AATAATGTTT	AAACATGATT	TTTTTCTCCT	TTGTTTACTA	GATACTAGTT	2160
TTCTTTGTA	AGCATTTTGT	CTACAAATAT	AATCACAAGA	ACAATTCCCC	AGAATTGCAT	2220
TGTAATAAAA	TTGAAGAAAC	TTTCTGAAAA	GCTGCTTCTT	GGCATAAAGA	ATAGATTATT	2280
CAAGATGAGT	AGGGATAAAG	CAAATAGGAT	TGTCCTTGAG	CGATAGGCTA	CTTGCAGCAT	2340
GGCTATAAAT	AATACGCCGA	GTAAGAAACT	AAGCAGAAAG	ACTCCAATCA	TACCATAGTC	2400
GGTATACAAC	TCCATGATAT	AACTACTTCC	GATACCATGC	CCTTTCAAGT	ATTCCTTGTT	2460
CAAGACAAGA	TAGGATAGAT	TGTGGGCATA	ACTATTACTA	TCAATAGCTA	GTTCCACACT	2520

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ATTGGTTGTA TGTTCAAAGG CTTTTCCTCC GAAAATGGCT CCCAACTCC CCCTTGCAAA	2580
ATAATCAAGA ACAGGACCAA AAGTAAATTT ACGGAAATCT CGGTAAGGGA GGCTACTGTT	2640
AAATAGAAAA CCTCGAGCCA GAACACCAAA ACTAGTCCCT TGTTTATAGA TAAAGTCAAG	2700
TAAGATATCC CAGAAACCTG TATGGGAAAC TTGGACATTA TCCCGTACAT AATTGAGTAC	2760
TCCCATCGCT AACATGAGAA TAGGAGAACC TACAAAAATC GCTAACTTTT CTTTAAACCC	2820
AATCCATTTT CCTTTTTCAG TTTGCTCCCG CATAAAGTAA TAAACAAAAG CAAATMAAAT	2880
ACTTAAATA AAGGGATTTC GTGTCCCAAT TGCCAAATGA ATAGTATTAG CTGCAATAAA	2940
GGAGACAAGC ACTGCTGTGG CCTGCAATTT CTTTGGCTTG GTTGCCAGAT ACATACACAT	3000
TGCATAGACC GTAAAGCTAG ACAAATGTA GGTAATAA GGCAGTTTAC TTTCAAATTT	3060
TGCATAGTAG GCATAGTAGG AAGTCTGCAA ACGATACAAG AGCCGTTCAA ATAACCGAAT	3120
GAAATAGAAA GGATAAGTTA GAAGAAAAAC TCCTAGTGAT ACAAAGCGTA ACCGCTTGAT	3180
ATAAACCTCT TTTAGAGAAT TTCCTATATT TGCTACTTTT ATTTTCTTCC TAGCTATGAA	3240
GTAACGAGCC AGAATGCCTC CTGTGGTCAA GCCCAGAATC GAAATCATGA CAACTATAAA	3300
GGCAAAACGA TAGGCTATTG GATGATAGGT ATCCAAAGCA CCATCCCTAA AATAATCAAT	3360
GGTCGGTCTT GATACCAGAA ATACAAAAAT GGTAAATAG AAAATAAAAT GGATTAAGTA	3420
ATACTTGATA TCATTCCAAC AAGCAATTAA GCTACTAACC AACAAGAACA ATAAAGTAGA	3480
AAGTAAGCTA ACATTATTAT TATTAAACAG ATACACAATT CCACTTACTA GCGTCAAGGC	3540
ATAACTGACT ATGGTCAAAC TAAATAATAA TCGTTTCCCA TCAATCACTT GGTCACCCCC	3600
GTTCTAATGT AATTTTTTAG ATTTTCAAT ATTTTTCAGT AATAAGAATC GATATAAGGA	3660
AATATTTATG AATAGGGCCA AAGCACTAAT TCTTCTCCCC TTACGGAAAA TTGGATTCTT	3720
AGAAATAGCA AAGGCATGGC CTTTTAAAAA ACGATGAATC TGAGAATAGG CTTCAAACCTG	3780
TTTATACTGA TCATCTAGCA ACATCTTATC CAGAATAAAG AAGTGGGCAT AGGCCAATCT	3840
GAAAAAAGCG ACCTCTTTCA AGTCAGGATA GTTTTTCACA ACTTCATTAT AAAACTTTTG	3900
GTAGATATCA ATATAGGCTA AATCCTTCTC TGCATAGGGT TTGGTCGTAA TACTATCCCC	3960
TCTATGGAAA TAGTAATAAT AGGGTTTAGT ATTAACCACA TACTTCTTGG CCAACTTGAT	4020
TAAATCAAAA TGGTAATAGG CATCTTCGTA AATCAACCCC TTAGGAAAGG ATAGGGCAGT	4080
TGCAATCTGT CTCTTGATTA GCTTATTGCA AATCGTCCCA GGTATTTTTT CACCTATGAG	4140
GTATTCCTTT AGAAATGTTT GAGAATCACA GACAAAATAG TCATCCTGAT TGGCTGACTG	4200
TGGGCTTTCA TCATTAGCAT AGACATTCAT GACACCACAG CTCGAAACAT CCGCATCTTC	4260
TTGAACTAAT TGCTCATATA AGCTCTGAAT CATTTCTGGA TGGATATAAT CATCTGAGTC	4320

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AATAAAAATC AGATAATCCC CGTGAGCCTG CTTTCATCCCA TCATTTCGTG CTTGCGACAA	4380
TCCTTCGTTC TTTTATGAA GCACTGACAC CCTGTCATCT TGTTCAGCGA TTGAATCACA	4440
CAAGCGACCA CTTTCATCTG TTGCACCATC ATCAACAAGA ATAATTCCA GATTTTGATA	4500
GGTCTGCTTC TGAATGGAAG CTATCGATTT TTCTAGGTAC TCGGCCACAT TATAGACTGG	4560
CACAATCACA CTAATTAATG CAGTTTCCAT GCTACTCCTC TAATAGTTTT TCTACTTGTT	4620
CGATTTGTTT TGAATTGTA AATTGTTGAA TGAATTGGCT AGCCTCATCG ACATCAAAGT	4680
TTGAGGCAGA AGTCATGTAA TTAGTAATCG CCTGAGCTGC CTCTTGATTG CTCTCAATGA	4740
TTTGTCCAAA TCGTCCTTCT TGGGATAATT CCTCAGCCCC TCCAACGTCC GTAGAGATAA	4800
AAGGGAGTCC CAGACTCAAG GCCTCCACAT ACACTCCAGG AAAACCTTCT TGTTTAGACA	4860
TAGACAAAAG AACTTTCGTC TGAGATAGAT ACTGATAAGG ATTTTTTTGA TAACCAAGGA	4920
AATGTACATA GTCCTCAATC CCATACTCTT TGACTCGTTT TTTCAAGTCC TCTTCCATAT	4980
CACCAGCCCC GATAAAATAG AGATGATAGT TTTTCCCTC TTGGTGTAAT AATCGTATCA	5040
CTTCCACTAC ACGGTCAGAA CCCTTATTTT CCTCAATCCG TCCGATAGTA CAGATACTTT	5100
GAGGAGCAAT CTCGATATCG ATCTTCTCTT GAGATTTTTT TAGAATAGTC TGAAAATCAT	5160
ATCCATTGTA GATTGTCTGT AATTTAGAAG TATAATCTGG ATAAACTTCC TTGATAGAAT	5220
TGCTGGTCTT TTTTGAAATC CCTACAATTG TATTCGCAGC ATCCAAGTGG CTCTATGTG	5280
ATTCTCTTTT AGAGCTATCC TTAAGAAGTT CTCAATACT TCCATGAATC CAAGATATCT	5340
TCTTGACTTC TCTTCTTTA GAGAACAACA GTGGTGGATT CATAATGGTA AAAGAACTT	5400
CAACATCATA ATCATCTTTT ACAAGCAAAC GACGAGTCAG TCTTGGAAAA TAAATCTCA	5460
TTCTCCACAA AAAAGCTCGT AACCATCTGG TTTGGCGATA ATCTTGAAGG GATTTTAAAA	5520
TGCGTACATG CTTTGAACA GATTCATATC CCTTGTCAA GTGCTCCATT TCAAGAATAT	5580
CAATATCATA CTTTCTGGA TCCAGATTG AAACAATGGT TGATAGAATC TTCTCTGCAC	5640
CACCTCCAAG AGAAAAAGAC CACATAAAAA ATAAGATTTT TTTCTTAGCC ACCATATTCT	5700
CCCTTGATT CTGTATAAGA CTTATCCATA TCAGCGATGA CAGCATCATG ATGCGGTACC	5760
TGCTTGCTG CTGGTGGAGG CGTCATATAA TCCCCAAAAG CAGTTCTGAG ATAGACATCA	5820
TAGCCGATTG GAATAGGCAT CTCTGTTCTT TCAAATGGCA AGAAAAGATT GTCTTCAAAA	5880
GATGTGATTG GGTACTTGTT TCTCATGTAG CCAGGACCTG AGCATAATTC TGTAATGCCA	5940
TCACAATCAG CCAAATCATA CTTAGTCATT TCTTTCTCAG CTTTTTTCCA GATGCGATAA	6000
CGGAGAGATT TTGGAGTCAA ACCCAGTAAA ATGCGACTTC CCCATTTTAT GAGATCACCA	6060

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TGCTTTCTG GAATAGTTTG CGCACAAAAG AGTGAATAAA TCAAGGCCCA ACGAACCTGT	6120
TTTTTCCGCT CAGCTGGATT TTTCGGATAA TAATCCAAAG GCAAAACATC CAAGGCCAGA	6180
CCATGTGGCA AATCCAAATC CTGCTGATAA GGCTTGATAC AGGTGGTTTT CTGTGCACGA	6240
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TCATCTGCAT AACGAGGCCA TAATTCTGCT AATTTCTCAT AATCTTTACG AGGCATAAAA	6360
AAGTCTAGGT CGTCGTCCCA AGGAATAAAT CCCTTGTTTC GAAGGGCACC AATAGCGCCT	6420
CCGCCACAGA GATAACAGAG CAAATCATGT TCTTTACAAA AGGCCACAAA ATATTCAGCC	6480
ATCTCCAGAC TACGAGCCTG AATTGCTTTT AAATCAGTCA TATTGTTTAT TATTCTTTCT	6540
ATCGTATCGT TTCATTATAC CACAAACAAG GGGTGAAAAT CTATTGCAGA CTGTAAAAAA	6600
TCAAAGCCTG ACTGCTATCC AAATAGCTAT CAACTTTGA TTTTCTGTC TTATACTCTT	6660
CGAAAATCTC TTCAAACCAC GTCAGCTTCA CCTTGCCGTA GGTATAGGTA ACTGACTTCG	6720
TCAGTCTTAT CTACAACCTC AAACTGTGT TTTTAGCAGC CTGCGGCTAG CTTCTAGTT	6780
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GACGCCCATC CAATGTTGAA AATTGAGCAT CAATCGTCAC CCCATCAGGG AAAAGCGTGT	7320
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ATTGACTCTA GCACCGTGAA GAGCTGATTT TCCTTTGATA ATCATCCCAT CTGCCGTAGG	9600

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CATATCTTCA GTATGATTAC GGGTGTAATC TTTTTCGATA ATAACGACT CCCCCTTAGC	10140
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TCCACACCAC CACGCTTATG GATTTCCATG GTCTGGCGTT GTTCACGCGC TTGGTTAAAA	11400



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CACATTCTCG GCTCGCTTTC CGCAATTTCG GTCATATCTC GAAAACCACC TGCCGCAAAG	11580
CGCCTTGCCA TCTCATGCTC TTGAGCATAG ACCGCAGTCT GCTCCATGAG ACTAGAAGCC	11640
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CCACGACCGT	AGCCACCCTG	ACGGCGTCTA	AGGTCCCTCAT	TGATATCCTC	AGCTGTCAAT	13320
GGAAGTCCAG	CTGGAATTCC	CTCAATAATA	GCTGTTAGAC	GGGGGCCGTG	TGATTCTCCT	13380
GCAGTTAAAT	ATCTCATACA	CTCTCCTTAT	TTTACCAAGT	AGTCTTTCAT	CTCTTCCAGA	13440
GAAACTGGGT	GAATGGTCGC	TGAACCAAGC	TCTGGCACCA	AGACCAATTT	CAAGGTGTTA	13500
CCACGCGCTT	TCTTGTCAATG	AGTAAGAGCC	TGATAAAGCT	TGCCAACTTC	CCAATTTTCA	13560
TAGTCAACAG	GCAAACCGAA	TTTCTGACAC	ATCTCTGTGA	TAGATTGGGT	AATGCCAGCT	13620
GGCATGAGGC	CTTTTTCCTC	AGCAACCTTG	GAAATCTGTA	CCATTCCCAT	GGCAACAGCC	13680
TCTCCATGCA	TGACCTTGCC	ATAACGGCA	GTCGCTTCGA	TGGCATGGCC	AATAGTGTGG	13740
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GACCGATCAT CATGAGATAA GGAAGGAAAG CACTTGTAAG AAGCACTGTA ATCACGCCAG	18540
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AACAGATGAT CATCAAGAGA CTGGAAAAAA TGTAAGAACT TAAGACTCTA GCGGAAACAT	19380
TTACTTTTTT	19390

## (2) INFORMATION FOR SEQ ID NO: 87:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 18436 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 87:

CCGAGCGTCG TTACAGACTT TATCAAGATT GGACGCAAGA AGAAATTCAG CATATAAAGG	60
AAAAATATGGC ACAATCTCCA TGGCATACTC ATTACCATGT TGAGCCAAAA ACAGGACTTC	120
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TTCACTTTAA AGAACTGGA ATCAAAGTTT TACCAGATAC TCCATTAGAT AGCCACGGTG	300
CCTACTCTGG TTCTGCCATG CAATTGGCG ATAATTATT CCTATTTTAT ACAGGAAATG	360
TTCCGGATAA AAATGGATC CGTCACCCAT ACCAGATCGG TGCTTTGATG GACAAGGAGG	420

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GTAAGATTAC	AAAGATTGAC	AAGATCTTGA	TTGACCAGCC	AGCAGACTCT	ACTGACCACT	480
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ACTTGGAGAA	AAAAGGTTTC	GTTCGTCTCT	ACAAGGCTGT	CAATAACGAC	TACACAAACT	600
GGCAAGCAGT	TGGCGACCTT	GACTTTGCTA	ACGACCGTAC	TGCCTACATG	ATGGAATGTC	660
CTAATTGGT	CTTTGTAGAG	GAACAACCTG	TCCTTCTCTA	CTGTCCACAA	GGATTGGATA	720
AGAAAGTTCT	AGACTACGAT	AATATCTTTC	CAAATATGTA	TAAGATCGGG	GCTTCCTTTG	780
ACCCTAAAA	TGCCAAAATG	GTAGATGTGT	CTCAACTTCA	AAACATGGAT	TACGGTTTCG	840
AAGCCTATGC	AACTCAAGCC	TTCAACGCTC	CTGATGGGCG	TGCTCTAGCA	GTTAGCTGGC	900
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TGGTCAAGGA	ACTCACTATC	AAAGACGACA	AGCTCTACCA	GTATCCAGTC	GCTGCTATTA	1020
AGGACCTTCG	TGCTTCTGAA	GAAGCCTTCT	CAAACCGTTC	CCAAACCAAG	AACACTTACG	1080
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GCCAGGCTGG	AGAACAGTAT	GCCCCAAGAAT	TTGGGACAAC	TCGTTCTTGC	CCTATCGAGA	1260
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AAGGAGAAAA	AGTATTTTCT	GGTCGTGTCT	TCCCATATGC	GGACCAAAAT	GGTATCCTGA	1380
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GATGTGCGCA	AACTTGCAGG	CGTCAGTCTT	ACTACCGTTT	CTCGGGTTAT	CAATAAAAAA	1500
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AAACCCAACA	ACCTGGCTCG	TAGTCTGCAA	GGAAAATCAG	CTAAGTTAAT	CGGCTTGATT	1620
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GAATACATCG	AAATGTTGGA	AGCCAATCAG	GTGGACGGCA	TCATTTCTGG	TAGTCACAAC	1800
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TGCCCCAACG	GACTGCGCCA	CGCTGGTTTT	GCATCCGTAC	TCCCCAAAAG	TCCTATTATC	2040
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CGGGAAAAAC	CAGATGCCAT	TTTTGCTTCG	GATGATTGTA	CAGCTATTCT	GGTCATTAAA	2160
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CATTCCAATA	GAGATTACCA	AAGCCAACAT	GACAACCAAG	GTCGCACTTG	CCAGTGCTTT	6120
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CGGTGCCAAA	ATGGCCAAGA	TAAAGACCAC	AGCAGGTGTC	TTATAAAGAA	TACTTAAAT	6240
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GCA TGACCGC	ACCAGCTATA	ATCAAATCTG	CCGTTGAAGG	AAAACCTGTG	TAGCGAGCCC	6660
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CCCCTGCGAA	TGCGCGATTG	GAATCATGGT	ATCTTCTACA	CGATGGATTT	CTGAGCCACT	7140
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GGTTGAGAAC TGCCAATAGA ACTCACAACC GCATCACGGC CCTGTCTTTG TTCTGGATTT	13920
AACTCCAAAG GTCTACTTGC TTCAATTCTT TCAAAATAAG CAGCCGAGCG TTGAACTTCC	13980
TTTTGGACTA TGGTAACAGC ACCTTGATCC ACAAAGAAGT TGAATTGCTC TCGCGAGTAG	14040
GACTCTAACA AGCTAGCCAA GGAAGCGCTC TCTGGATGAG ACAGCAGATA ATCTCTCAGT	14100
TCCAACTTTT TCTTGGCAGC TGTAGAAATC TCAACACCTT GTAATTGAGC ATGGTCAACC	14160
TCATACCAAG ACTGGGTCTT GACCTTCTTT TGATCGACTC CCGTATATTC CAGACCAAGC	14220
AGGCCTTTTC TAGTCAAACG CATCATTTCA GCTTGCTTGG CAAGGTCTAG TGAAGAAAAG	14280
GCTAGCGAAT CTTCTGAACC AAACAGGCGC ACTCGTTCTT CCTGACTCAA GCCTTCCAGA	14340
GGATAGAGAA TCTTGTCTATA GCTAGAATTC AGAAACCTG GAAGCATGGC CTTGAGGATA	14400
GAGATTTTGT AGGAGAAGAC AGATTGCGT AACTCCTCAG CCAGCCAGAG TTGTTCTGGC	14460
GTGAGAACAG GAGAAAAATC CAGCACCTCT GCAATATCTT TTAATCTTG CTCCATCTCT	14520
TCTCCATCTG ATTGGGACTT CAAACCAAGA ACAATCCCTT GAATCAGGCG ATTACCTTA	14580

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CCAAAAGGCA CATGAACCCG CATCCCAACT TCCAGCATTC CCTCAAATTC CTCCGGAATC	14640
CTGTAACTAT AGGGCTGGTC CGTCTGCATC AAGGGCACAT CTACGATAAT CTTAGCTAGG	14700
GCCATCTTCT CACCTCCTCC TTGTCAGTAC ATTCTTGCAA TAGAAAAAAT AAGATTGAGT	14760
CCCCCAACC TTAAATTTTT TCACCATCTT CTTTTTCTTT AGCAATTTGC TCTTTGATTT	14820
TCTTTCTTC TTCTTCTTG CGGCGTTTTT CTCTTCGAT ACGGCGACGC ACTGCTTCAC	14880
GTTTTCCTTC TGGATCTGGG TGAATTGTAA CGTTTCCTGA TTCGATTTCT TCTAAAGCGC	14940
GAAGAGTTGA TTTTTCAGAC TTGAAACCTT GAGTTGCTGG GGCACCTGCT TCCAATTCGT	15000
GGGCACGTTT TGCTTCCAAG ATTACGAGTG AATATTTTGA AGGAACCTTG TCGAGCAAGG	15060
TATCAATAGA GGGTTTAAAC ATCATTTGCT TGTACCTATT TTCTAAATTT TATCGGGTAG	15120
TTGGAGATTT TGGTAACATC TCCTGATAGT GACCAATGAC ACGATCCACA CAGAAGTGTT	15180
CTGCTTCAAT CACACATTTG ACACGTTTCA CAGCTAGGGG TACCTGATCG TTGACAATCG	15240
CATAATCATA CTCACGCATG AGGGCAATTT CTTCTTGGC CTTTTCGATT CGTTGGGCAA	15300
TCACTTCTGC ACTATCTGTT CCACGACCTA CCAAGCGATC TTGCAATTCA TCCAAATCTG	15360
GTGGTGTGAG GAAGATAAAG ACAGCATCTG GAACCTTTTT CTTGACCTGA AGAGCACCCT	15420
GAACTTCAAT TTCAAGGAAA ACATCGATTC CCTTGTCCAA GGTTCATTG ACATAGGTCA	15480
GAGGAGTTCC ATAGTAGTTA CCGACATATT CTGCGTATTC CAACATCTGT CCTTGACGAA	15540
TCAGCTCTTC AAATTCTTCA CGAGTACGGA AGAAATAGTC AACACCGTCC ACTTCTCCAG	15600
GACGTTGTGC GCGTGTGTC ATCGATACAG AATATTGAAA TTGGTTTTCA GAACTCTCAA	15660
AAATCTCTCT TCTAACGTT CTTTTTCCAA CCCCTGAAGG ACCAGAAAAA ACGATTAGTA	15720
AGCCTCGGTC TGCCATTGTG TCTCCTTTTA GTCAATCTGT GAAATAACAT TTCTCTAGAA	15780
TAATGGCAAA AAGCCAGATT ATCCTTTACA GTCTTTCTAT CTAGTGTAAC AAAAAAGCAG	15840
TAATTTTTCA ACTGCTCTTT CTTATTTATT TAGCATAATC TACTGCACGA AGCTCGCGAA	15900
TCACGGTTAC CTTGATATTT CCTGGATAAT CGAGATTGTT TTCAATTTTC TTACGAACTT	15960
TGTGAGCCAA GATTGTGACT TTGTCGTCCT TGATTTTTC TGGATTGACC ATGATACGAA	16020
TTTCACGTCC TGCTTGAAGG GCAAAGCTAG TTTGCACTCC TTCAAAGCCG TTAGCAATTT	16080
CTTCCAAATC ATGGAGACGC TTGATGTAGC TTTCAAGAGA CTCACTACGA GCACCTGGAC	16140
GGGCTGCGCT CAAGGCATCT GCTGCAGCGA CGATAACTGC TATCACGCTC TCAGCTTCAA	16200
CATCTCGGTG GTGACTAGCA ATCGTATTCA CCACAACCTG GGGTTCCTTG TACTTACGGG	16260
CCAATTCAT ACCGATTTCA ACGTGGCTAC CTTCAACCTC ATGGTCAATG GCTTTCCCGA	16320
TATCGTGAAG GAATCCAGCA CGACGGGCAA GAGCCGCATT TTCACCAAGT TCGCTCGCCA	16380

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TGATACCAGC CAACTTAGCA ACCTCAATCG AATGGCGCAA AACATTTTGT CCATATGAAG	16440
TACGGAACGTG CAAACGTCCC ATAATCTTCA TCAAGTCTGG ATGAAGGTTT GGCGCACCAA	16500
TTTCATAGGC AGCAGCCTCA CCGTATTAC GAATCTTATT GTCAATCTCT TGACGGTTTT	16560
TCTCAACCAA CTCTTCGATA CGAGCTGGAT GTATACGACC ATCTTTGAGC AACATTTCCA	16620
TAGTCATACG GGCAATCTCA CGACGAATCG GATCAAATCC TGACAAGGTC ACCACTTCTG	16680
GTGTATCGTC GATAATCACA TCGACCCCTG TCAAACCTTC AAAGGTACGA ATGTTACGAC	16740
CTTCACGACC AATAATGCGT CCCTTCATAG TATCGTCTGG CAGATGAACT GTTGAGTTTG	16800
TTGACTCCGC TACATATTCA CCAGCGATAC GTTGACATAG TTGAACCAAG ATGTCCTTGG	16860
CCATTTTGTC AGAACGTTCC TTGACCTCTT GCTCAGCTTC GCGAATGCCA CTGGCAATCT	16920
CCCTGGTCAA GTTTTCCTCT GTCTGAGCCA AGATAATATC TCGTGCTTCT GCCTGAGACA	16980
GCGCACCAAT ACGCTCTAGT TCTGCTTCTT TTTGTCTTC GACTTCCTCT AATTGCTCTT	17040
CACGCGCATC AAGGTTTTTC GCTCTATCAG AAATACTTTG TTCTTTTTGT TCAAGTGTTT	17100
GTCTTTTACT CGTCAAATTG TCGTCCTTAC GGTCAAGGCT AGTAGCTCTC TCTGTCAAAC	17160
GACTTTTCGAT TTGTTTGAGT TCTTGACGTT CTGATTTGAA TTCAGCGTCC ACTTCTTCAC	17220
GGTATTTTCT GGCTTCTTCT TTGGCCTCCA ATAGTGCTTC TTTTTTAAGA GACTTGCTTT	17280
CACGTTTGGC TTCATTAACA AGTAAATCCG CTTACGCTC AGCTTGTCCTA CGTAAATTAG	17340
TTGCTTCTTG TTCAGCATTT AAAAGCATCA ACTCTGCAGC TTCCTGAGAT GATTTTCATCT	17400
TAGCTGAGAT GCTGACATAT CCAATGACTA AACCAATGAT GACGGCAAAA ACAGCAATCG	17460
CAAGCGACAT GATTTCCATG TTTTACCTC ATTTTATTGT TATCCGAAT GACATACATT	17520
CTTTTACATT CTACCATAAA AAAGTGATTT TCACAAACCT AAAATAGAAT ATGTTTTGAG	17580
GAATTTGGAA CACATTTACC AAAATAAACT TGTGTTTGT AAATAGTAGT TTAGTAGAGA	17640
CTTGAGAAAA AGCCTACCTT TCAATAGACT TAGTAATGAT CTTTAAAGGA CAAGAAAGCC	17700
ACGCTATCTC CATCCATCAT ATAAATCAAG CGATTTTCTG CATCAATACG CCGTGACCAG	17760
GCTCCTTGGT AATCATATTT GAGTGGTTCT GGTTTACCTA TTCCTGTAAA GGGATCACGT	17820
TGAATATCCT TGATTAGTTT ATTGATTCTT TTAAACGTTT TCTTATCCTG ATTTTGCCAG	17880
TAGCAATAAT CTGCCCAGGC ATCTTCTGTA AACTTGAGCA GCATTTCTTA CTCCTCAATA	17940
ACATGGACCT GAGTACTTCC AGCACGAACT TGAGCCATTC CTCGCAAAAC CTTATCAGAA	18000
AGTTCCCTTAT TTTGAGCAAT TCTCAGGTT TCTTGATAC TATCCCACTC ACTCTTTGAA	18060
AGGACTACAA TGTCTCATC TGGATTTTGA TTGACCACCG TCAAAGGCTC AAATTCATCA	18120

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TTTACCTTCT TCATGTAGTC CTTTAAATGA TTTCGGAATG TTGAGTAAAG GACTGCTTCC	18180
ATAACCATAC CTCGTTTTAG CTCTTTTCCA CTATTATACA CGAAAAGAAA GAAATTGTCA	18240
GGAAGTTGTA CAAGATTTTC TTTTCTATCT ATTTATACTC AATGAAAATC AAAGAGCAAA	18300
CTAGGAAACT AGCCGCAGGC TGTACTTGAG TACGGCAAGG CGACGTTGAC GCGATTTGAA	18360
TTTGATTTTC GAAGAGTATT ATTCGTAAAA AATCTCAAAA AGCCTACCTT TCGGTAGACT	18420
TAGTTTGTTT CTATTC	18436

(2) INFORMATION FOR SEQ ID NO: 88:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 7001 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 88:

ACGTAGAAAA ACTATTTCTA TCACAGATAA TATTCCGTAT GTTGTGGAG GTATTGAAAT	60
AAACGTCCTA GGTATCTTTC TCAGTCTATG TGAATTACAA GGGAAAACTC TTTTCGAGAC	120
AGAAATTTTG AATGAAGATT ATCCTATTTT AGAAATCAAT TCCACCATTA CCAATATGAT	180
AAAAACAGCT ATAGAGTACG TCCCTTTGGA AACAAAATTA CTTGGATTG GCTTATCAAT	240
ACCTGGACAT TATAACAAAG ACTCCGGAAG TATCATTACA AACAAACCCA TATGGGAATC	300
TTTAAATTTA TTAAATGTAA TAAAAGATT CAATTTTCCT TTTATTGTAA AAAATAATAT	360
CGATTGTATG GCTATAGGAC AATACCTTTT TAATCCACAC AATACCCCGG ATAACTTTAT	420
TTTCCTACAC GCTGGATTAG GTATTTACAC TTCCTTTTTC ACAAAGAAA AAATAGGAGC	480
CTCTAAAAAT CCTTATATCG GAGAAATTGG ACACACCATT GTCGAATTGA ATGGGCAATA	540
TTGTGAATGC GGAAAAAAG GTTGTTTACA AACATATATT TCGGATGCTT GGTAAATCAA	600
ACACGCCCAA TTATTATTTA AAAATTCCCA ACTAACTGTA CTAAAAAGCC TTGTAAAGAC	660
TGAAAAAGAC ATTCATTTAG ACACCCTTTT AACGGCTTAT AATTTAGGCG ACTCCGCTTT	720
ACGTCAACAA ATTGATAAAG GAGTCAATTT ATTAGCCACT TCTATTGCAA ATCTCCTCCT	780
CATCAATCCT GCTGATAAAA TCTATATCAA CAGTCAATTG CTTAATTATC AACCTTTCAC	840
TCATGAAGTC AGGGATAAAA TCCAAGACCA GCTCCACTTC GTTCCCTTTA CTCGTAATAT	900
AGAAATTGAA ATTTTACCTT ACAACAAACA TCGTGAAGT ATAGGAGCTT GTGCATTAGC	960
TATCGTCGCT TTTTTCATAG AACATAGCAA TGTATTACAA GATATTATTT CACCTTAATA	1020
TATTAGAAAT CTATAGACCT GTTTAAATCA ACTATAACCT GTAGTAGATA TCTCGTATTT	1080



AGACAATATG AAAACAAGAC GACTTCCATA TAGGAAACCG CCTTCTCGCT ATGTTGAGTG	1140
ATTTATATTA AAATAACTTT TCTTCTAGCT GCATTTTATT ATTATAAAAA CATTCATCAT	1200
AACCCCCAGA ACTTAAATAA CAATTTTAT TCAAGATACA TACTCCTAGA ATAAACTTTA	1260
TATGAAATTC TCATTTTGT TTTTACAATT CTCCTTAGTT AAATCTTGTT TAATATATGT	1320
TTTACATATA GTATTTAGCG CCACATAGTA CTGAACCTC TCCAAAAACG GTTATTCCTC	1380
TTTGAATAGG GCGTTATCAC AAGAAAAGCA TCTCCACGTT TCAACTTCAT ATGGCTCAAA	1440
AACAATCAAT TGATGCTAAA ACCTGTACCT AGATGTTTCG GTTCATAAAA CCATGAAACT	1500
GTAAAAGTGG ATGAAATTGA TAGCGATAGT CAAATCAAGA GGCATCATAA CTCTAAAAAG	1560
TCACAATATA TAAGTTCATC CTCGGAAAAA TATCATTCTA ATTGTTGAAA TGCCTACATG	1620
AAAAGAAACG TCAATGCTC ATGAAACAAC GAATACAGGT ATCAAACTA TGACAAAACA	1680
AATCCCTAAA TTTACTAAAG ACACTGCTCA ACTTTACACC TGAAATGGT TGTGTATATA	1740
TAAAGTTACA AAGATGTACG ACCACACTGT TGTAAATCAT AGTGTTCGGG AATATATTAC	1800
TGATAGCATT TCTACAAATA CAAGTAAAGA GAGCGGATGA GATTCAAACG AAATATGTCA	1860
GTGCTTTGGC ATTCCTAGCC TTCATATCAT TTAAAGAATT CTATAGACAA AATTTTTTCC	1920
AATACAGACA CTCGTAACAA CTGCTTCATT TTTCTACCA CATATTTAGG AACAGGATAA	1980
GATACAAGAG TATTAATCCA TAGCTCAGTT CTATACCAAT CTAAGACAAA TAAGCTAAAA	2040
AAACGATTGA TAATAAGCAA ATAGATTCCA AATTTTCTCT ATCTGCTCAT TTTAATAAAC	2100
AATACTAGTG TAACTATCCT TCCAGTCAGA AGCTTGTCAG ATCACACCGA AAATTCCTCT	2160
AAAATTTATC TCGTTAGGCA ATCAAGCAAA AACTCGACGA TAGTACAAAC ATTATCATAC	2220
AGGATTGACT TCCTAAATTA TATACTTTAG TAAGGTTTTT GGATAAGAAA AAAGGTTTCT	2280
TTTACATTTT TAAACATTCT TTTCTAAGAT GAAAAACAGA ATTTTTCGAT TGTGATTTAA	2340
AGCAACAAGA AGATTTTCAG TATCATCCTA TAGATACGAG CTAATTAAGA AAACTACAT	2400
TTTTGAATAT AAACACAAT AATATAAACT AAATTTTATA GGAGGAAGAC AATGGATTGG	2460
TACGATTATA TGATACAGGC ATCCAAACAA TCACAATTCA ACGCAAGCCA TTGGTTTCGC	2520
TATTTGCGAA AAGTTATTTT TGAAGACTAT TCTTATTTAA CAAACCAAGA TGTAGAAAAG	2580
TTGCTAGACT CCAAGAAGT AACCCGTTTT CAAAAAATTA GCTTGAAGTA TGCCTTTCAA	2640
GAGCATACTC CAACTCATAA ATATGTGATT TCATTAAATA AACCTGCTAA GTTAACCAAT	2700
GTTCAAAAAT TGATGGAGAA ATACAAACAT GGATAAAATG AAACCGGTCT TCCAAGCCCT	2760
AAATAAGGAA TTAATTCAGG AAAATCTGAC TTAAACAATT ATCTGTGTCG GTGGTTATGT	2820

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CTTAGAATAT CATGGTTTAC GTGCCACACA AGATGTTGAT GCTTTTATGG CTCTATAATA	2880
TTTGTAGTGG GTAAATCCCC TATGGATATT ATGGAGCCTA TTTTGTGTA GAAAAAAGT	2940
CCCATATGAC CTATAATGAA AAGCGACAAA ACAACTCATT AGAAAGAATC ATATGGAACA	3000
ATTACATTTT ATCACAAAAT TACTAGACAT TAAAGACCCT AATATCCAGA TTTTAGACAT	3060
CATCAATAAG GATACACACA AGGAAATCAT CGCCAAACTG GACTACGACG CCCCATCTTG	3120
CCCTGAGTGC GGAAACCAAT TGAAGAAATA TGACTTTCAA AAACCGTCTA AGATCCCTTA	3180
CCTCGAAACA ACTGGTATGC CTTCTAGAAT TCTCCTTAGA AAACGCCGTT TCAAGTGCTA	3240
TCACTGTTC AATATGATGG TCGCTGAAAC TTCTATCGTC AAGAAGAATC ATCAAATTCC	3300
TCGTATTATC AACCAAAAAA TTGCGCAAAA GTTGATTGAG AAGATTCTA TGACCGATAT	3360
TGCTCATCAG CTGGCCATTT CAACTTCAAC TGTCATTGCG AAGCTCAATG ATTCTCACTT	3420
TGAGCATGAT TTTTCGCGTC TTCCTGAGAT TATGTCCTGG GACGTTGAAA CAGTCCGGGG	3480
AGTGACTGTT TCAATCGGGA GATGGAGATG AGCTTTATTG CGCAAGATTT TGAAAAGCTC	3540
GATATCATCA CTGTTCTTGA AGGTAGAACA CAAGCTGTCA TCCGAGATCA CTTTCTTAAA	3600
TATGATAGAG CCGTCCGATG TCGCGTCAAA ATTATTACTA TGGATATGTT TAGTCCTTAC	3660
TATGACTTAG CTAGACAACT TTTCCCGTGT GCTAAATCG TTCTTGATCG CTTTCACATT	3720
GTACAACATC TTAGCCGTC TATGAGTCGT GTGCGTGTCC AAATCATGAA TCAGTTTCAT	3780
CGAAAAATCCC ATGAATACAA GGCTATCAAG CGCTACTGGA AACTCATTCA ACAGGATAGC	3840
CGTAAACTCA GCGATAAACA TTTTATCGC CCTACTTTTC GTATGCATTT AACCAATAAA	3900
GAGATTTTAG ACAAGCTTTT GAGCTATTCA CAAGACTTGA AACATCACTA TCAGCTCTAT	3960
CAACTCTTGC TGTTCACCTT TCAGAATAAG GAACCGGAGA AATTTTTCGA ACTTATCGAG	4020
GACAATCTTA AGCAGGTTCA TCCTATTTTT CAGACTGTCT TTAACCTT CCTCAAAGAT	4080
AAAGAAAAGG TTATCAACGC CCTTCAACTA CACTATTCTA ATGCCAACT GGAAGCGACC	4140
AATAATCTCA TCAAACTTAT CAAGCGCAAT GCCTTTGGTT TTCGAACTT TGAAAACCTC	4200
AAAAACGGA TTTTATCGC TCTGAATATC AAAAAAGAAA GGACAAAATT TGTCTTTCT	4260
CGAGCTTAGC TTTTTCCTT CCACTACAG TTGACAAAGA GCCGAAAAA GGAACAGCCT	4320
TAGCTTTCCT TTCATTTCTT TTTATTTCCC TCGTAGTAAA CGTGCTAGCT TCCACAAAAC	4380
AAACAGGATT CCCAGAAATG CCAGTACCAC TAGCCACGG TACAACCATT GAGAGGTTGC	4440
AACACGGAT ACAGATTGTC CTTCTTTCGT AAAAGCAACC CTCGCAACTG CAGCTGTTTG	4500
TGGATCTGAT TTTTGATAAA CAGCGACTCG TTCAAAATC ACTAATAAGC GTTTATTAAA	4560
GGTAGGAATC GCATCGCAGG TTATCAAGGT CATGATATTT TTAGAGCTAA CCGATTCTAA	4620

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TTTTTCCCAT TCCGACGGTA AAATAATCTC TGTGTCCATC ATCTGATATT CTACAATTTC	4680
CTGGCCATTA TCATAATAAA GAGCATCTCC AACTTTTAGC TGATCCAAAT GGCGGAAAAA	4740
GACATGGCTT GGCTCTGCAC GGTGCCCAGC AATCACTGAG CGAATCCCTG TACCATCCAG	4800
AGGCAGCGGT GTACCATCCA CATGAGCCAA GCCCATCCCT <u>AAATGATGAT</u> AATCTGCTCC	4860
CAAATAAACC GGCTCCATGA TTTCCAAACT TGGAAATAGAC AAGTAACCAT AGACTGCATC	4920
AGGGTCGTCA GACACTTGGT AATTGACCTC ATATCCCTCC GCCAAAAAAG GATCTACAAT	4980
GCGATTTTGC GAAGCCAAGC GTTGATTGTA GGCGAGAGAA TGGTTCTGTT GTTCTTGTA	5040
CATTTAGTT GTCATGGATT TCACAAATGT AGCATGACCT TTCACCTGTC CAAGAGACTG	5100
CAACACCATC TGTCCAAAAC AATAAATAGG AATCAAACAG GCTACCAACA TCAACAAGTA	5160
TCCCAATAAG GCTCGTAGTT TAGTCCTGA CATGACGCCC CTCCAATTGC TTTTCTAGTC	5220
CTTTGACAAT CCGTCGATTA CGATACACGC GATACAGCAA GAGAAGGATG ACCGCCATCG	5280
CTCCTAGTAA TAACCACAAC CAGAATTGCC CACGCTCTCT CACCGCTCGA TTCCGCTCTG	5340
CAATTGGTGC CGTATACGGA ATCCGCTTCC CACGTACCAA CAGACGATGA CTGTTAATCA	5400
TATACGGTGT ACAAGTCAAC AAGGTGCGAT AATCTTCCCC ATGTTGAATC AAGACAGGCT	5460
CAAAGTCATT CGGCTCCACC GTCATATCT GATCCACTTG GTAGGCCAAC ACCTGATCTA	5520
AAACGTGAAG ATAAAAGATA TCCCCTTTT TCATCTTATC CAATTGACTG AACAATTCTG	5580
CCGTTGGCAA TCCTCTGTGA GCAGTGATCA CTGTATGGGT ATTTTCACCT CCAACAGGCA	5640
GCGAAGCCCC TTCTAACAGC CCTGCCCCCT TCTGAAGAAT GTCCTCACTC GTTCCGACAT	5700
ACATCGGAAT TTCCTGATCA ATCGCAGGAA TTTCCACATA GCCAATCCGC TCATGGACCT	5760
TTAGCATATT GGCATATTCT GAGACGCCTT TCTTTTCTC TTGCTCTGTA AAAGGATCAA	5820
GAATTTGAGA TGGTTTCAAG GTCGCATTGA AGGCTTGAGC CAAGCGCCAA CGCTCCTCAA	5880
GTTCTGCCTT ATCCATCTGG GAAACCGTCT CATCAAATC TTTAATAACC TCGTTTGACT	5940
CAATACGATA ATAATAACGA GACACCAATG GATATATCGC AACGGCGAAT CCTACTAAGA	6000
AAATCAGAAG AAGGATCAGC GGATGTTTCT TCTTTTTTGT GCCTTTTTTT CGTGAACGTC	6060
TACTGTTGTC CATCTCCAC CTTCACTTCC TTCCTTGCTG CTTTCAGCGC CTTCAAAGCC	6120
TTTTCCGGTT GTTTTTTCTT CTTGCGCAAG CGTCGAATAA TCCATAAAAG AATCACAATC	6180
AAACCAACTG CCACATAAAA CAGGTAGCGA TAGAGATGAC TGAGTTTGTT TGCTGCAATA	6240
AATTCTTCCT CAACCTCTGC TACGTACGGT ATCCGATGCC CCCGAACCAA TAGACGATGG	6300
GTATTGATCA TGTATGGCGT ACAAGTCAGC AAGGTCACAT AATCATGACC TGGTACAATC	6360

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AATAAATCAT CAAAGTTCGT CGGCTCAATC ACCTTTACTT GATCCACTTG ATAGGCCATC	6420
ACTTCCTTGA TATTGTGCAC ATAAAACTTA TCCCCAACTT TAAGTTTGGT CAAATCCGTA	6480
AACATCTTAG CTGTTGGCAA ACCTGTATGT GCCGTAATCA CCGCATGGGT CGAATTGCCT	6540
CCGATCGGCA GAGAAGTTCC CTCTAGATGC CCAGCCCCTT GCTGCAATAC CTCTTCAGCA	6600
GTACCAGCAT AAACCGGCAA ATCCACGTCA ATAACGGGGA TTTCCACATG CCCCATCCGC	6660
TCATGGATT CTAACATACG TGCATACTCT GCTCGCCCTT TTTCTTCAT TTCTTCCGAC	6720
CAAGGATCGC CACTCACTAC ATTATTCAA GAGTCATTGA AGGCTTGTGC CAATTCATT	6780
CGTTCATCAA TGTCAGCCTC ATCCAACGTT GCTTTTTCTT TATCAAAGTC AGCAATTGT	6840
TGATTTGATT CCACTCGATA ATACAAGCGA GACACCAGCG GATACGCCAT TACCGCCATT	6900
CCAATGAAAA ATACCACTCC TAATAGGAGA TTATTTCTGT TTTGCTTTTT TGTMTTACC	6960
ATTTTATCA GCATCCCTTT ATCTTCAAAC TTCAGGGTAT C	7001

## (2) INFORMATION FOR SEQ ID NO: 89:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 10411 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 89:

GAGGGAGCTT AAGAAGTTAC CACCGTCCTC TAGCGCCTTA TCCGCATCAA AGTTAAGGTT	60
GATATTTTAA AAAGTGTGCG CAGCTTGTGA TACGATGCTT TGTTTAAGGT CATTTAGGGT	120
TTAGTGAAA TCTGCATTGC TGAGGATATC ACTCTTTGAG AGATTCAAGG CAAAATTGAT	180
GATGATATTG ATCTGGTTTC CTGTTATGAC CTGATCAAGT TTGTAATTTT TTAAGGTATC	240
TTCAACAATC TTGCGGATAT CTTCTTCTGT CAGATTTCCC TTACTTTCTT TAGCTTTGGC	300
GAGTCCTGAC TTGATATCAG CTAGGGCAAC GTTTAATTTA TTAGCATCAT AGCCTGATTT	360
GTCTTTGTTT TCAGCATTGA TATCTGACAA AGCTTTTAGC TCTTCTTGAG CCAAATCTTT	420
ATTAGCTTGT GGCACCTTGG CTCCATTAGC CTCTAGCGAA TAGTAAATCC CTGCTAAAGC	480
ACTTTCTCCT GTAAGTGGAA TAGGGGCTGC TACAGTGATT TTGGCATGTT CCATACCCAG	540
CGTTACTGCT GCGTTTCGGT ACATATCCTG AGTCACCTTA GTGATATTTT CTGGTGTTC	600
AATCTTGACC TCAAGTGGCG ATTTGTCAAC TAGCTTTTGA ATCTTGGCTG ATGAATACAA	660
CTGTAAGCTA GAGTCATTGG CCACATTCAT GATTTTAGAA TAAACATCAG GTGTCATGGT	720
CTTGAGTTCT TTGGTATCTG TTGAGGCATT GTAGCCCAGT TTTTAAAGAG TTTGATTTT	780

709

TTGGTCTTCA GATAGGGAGG AACCTAGGAC ATATTCAGGT TGGACATAGG TTTCATCGAT	840
AACTTTTTGA ACATCTGTTG CTGCATGGAC GCTATTCATA GCTGTTACTG CCCACAAGAT	900
CGCAGCGCTA GTCAGAAAGA GTTCTTTCT CATAGGGAAT TTCCTCCTTT ACTTCTTTAG	960
AGTAATATAT CTATCTTAAA GAAAACCTAT AACAAAAACA CCTGGTCTAG CCAGATGTTG	1020
AAAAGAGAGT GAAACATTTG ATGATGTAAA GGTAAAGTCG TACCTGTCTA GAATAATAAT	1080
AGTTTCCTCC ATTTACATAG AGTTCAGCAC CGTGAAAAAT GGAAATGGGG TGAATATAAC	1140
TATAAGTCTT TCCAGTCCTA TTACCAAGCA AGGGGGCAAC AGTCTCACGA GAGTACTGTT	1200
TGGCTAGAGC CAGGGTATTT TCCTTGCCAT TTTGGGCGAT AAAATCGATA TAGGCAGGTC	1260
CAAATTTATA GGCTTGAACA GCTGTCCAGA TATCTACCCC CTTCTTCTGC GCCAGATAGA	1320
GATTGCCTGT CAGAGTTTGA ATGCCTTGCC GAATGCTAGA GGCATTATCA TTGATGGTGT	1380
TGGTGGAACC ACTTGCAGAC TCACTAGACT GCATAACATC GCCTTCTTTT CCTTTTGT	1440
CAGTATAAAT CATAGCAAGC ACAAGCTCTT CGTTTGCTGG GGTGTCTTGT TCACTCAATA	1500
TTTCTCGCAC CATGGGTTGA TAGGTCATGA CTGTGTTGAC ATCTTGATGA ACGCGGTAAG	1560
CTTTATAGCC AGCAAAAAGG AAGACTGCTA GTACAAGCAC TCTTCGAATT CGTTTAAACA	1620
TTATTTACTT TGGATATCCT CGATATTTT GATTAAGATA GAGTAGGTTT CATTTTCGTT	1680
TTGGATAAAC TCAACAGACT CGGCGTCTTG ATAGACGTTA TTGGGAACGA TGAGCTCAAT	1740
TCCATTTGAT AAGGAGAGTT TTTGGTTTTC AAATTTCTTT AATTGGCGAC TGGCATCAAT	1800
TTTCATCAAAT TGAACAGGTT CTGGTACGGC TTCTTTGACT TGGTCAATAA AGCTCAAACG	1860
AGCCGTCAGA TTGTTGTCAA AAAGGTCATT AGCCAATTTC TCAGGTGACA ATTCATTGCT	1920
TTCTTCTAGG TTGTTGAAAA TAGCTGATTT GACCTTGAT TGAAATTGAA AATCATCTGT	1980
GTTAAAAGAT TTAGCAATTC TCTGGGCTGT TTTTCCAGT TCCTTGATAG ATTTTTTAGG	2040
AGAAATCTTA GGAGCGACAG CAAGAAGATT ATCTGAAAA TAGTTCAAAA AAGTCCCGTT	2100
GTACTTGATT CGTTTTTCAA TCAGGTGATA CTGCTACTC TGAAGATTGA CCACCAAGGC	2160
CTCATCAGCT CCTGTTCCAA ATCCAGGCAG GTTATTCTGA GTTAGCTTGA TTGGATTATC	2220
AACTTCTCCT CCGAGGTGGG TCAAGGTCCT CCGCAGGGCA ATTCGCAAGA AAGCGAAATG	2280
TTCTACACCT TCTTTAGAAA ATTGCACAAA AATCAAGTCA TTGGTCTTGA GATTTTCAGA	2340
AATGCTAAAC TCCTCTTTCC AGAGATTAGC CAGCGTACT GATGTCTCCA ACAAATCGTC	2400
TGTAATATGA TTGAAGAAGG GATTTTCTTC TTCGAAAAAT CCAGTCTTGG CTTTCATCTGA	2460
ATACACATGT TCAATTTTTT TACGCAGGTA TTCTTCGATT TTTGGAGTAA TATTGAGAAA	2520

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CTTATCTGCT AAGAACAGTT CGGTATCATC CGGACTGAAC TGGTGAATAA TGGCTTTCTT	2580
AATATAAATG TCCATAAAAG TTTTAGTCCT CGTATAATGG GAAGGCATCT GTCAATTCTT	2640
TGACTGCACT TCTCACTTCT TCTAATACAG CCTCATTTTC TGAATCTTA AGGGTTTAA	2700
TGATGAGTTC AGCCACTTTG CGACTTTCTT CTTACACAAA TCCACGTGCA GTAATGGCTG	2760
CTGCTCCGAT ACGAATCCCA CTTGTCTTGA ATGGTGACAA GCTTTCGTAA GGGATTGAGT	2820
TTTTATTTAA GGTAAATATTG ACTTCATCCA ACAAGTTTGG AGCAACTTTG CCGTTTCTA	2880
CAACTTTAGT CACATCAACA AGGAAGAGAT GGTTTTCAGT TCCACCTGAA ATAATACGGA	2940
AATCAGGGTC TTGCAAGAAG ACATCTGCCA TAGCCTTGCT GTTCTTAATT ACATTGGCAG	3000
CATATTCCTT GAAGGCTGGA TCCAAACTT CTTTGAAGGA AACTGCCTTA GCCGCCACAA	3060
CATGCTCTAA AGGACCGCCC TGAATACCTG GGAATAAGC TGAATTGATT TTTTAGCAA	3120
GTTCTTCGTC ATTGGTCAAA ATCAAACCAC CACGAGGTCC ACGAAGGGTT TTGTGGGTCG	3180
TTGTTGTTGT GATATGAGCG TATGGAAGTGGCTTGGATG AAGGCCAGCC GCAACCAAGC	3240
CAGCGATATG GGCCATGTCC ACCATGAGCT TCGCACCGAC AGCATCTGCG ATTTACGGA	3300
ATTTTGAAAA ATCGATAATT TGAGAATAGG CTGAAGCACC AGCTACAATC AGTTTTGGTT	3360
TTACTTCTTG GGCTTGTTTC AAGATAGCAT CAAAGTCTAA GAGTTCCGTT TTAGGATCAA	3420
CACTATAAGA AACAAAGTTG TAGGTTTGAC CAGAGAAGCT AACAGGAGCC CCATGAGTCA	3480
AATGACCACC TGATGCCAAA TCCATTCCCA TAACCGTATC ACCTGGCTCA ATCAAGGACA	3540
TGTAAGCCGC ACAGTTAGCT TGGCTTCCTG AATGTGGTTG AACATTGGCA AATTTAGCAC	3600
CGAAAAATTC TTTTGCGCGT TCAATAGCAA GAGTCTCTAC AACGTCTACT ACATCAGTTC	3660
CACCATAATA ACGGCGTCTT GGGTAACCCT CGGCATATTT ATTTGTCAAG ATAGACCCCT	3720
GAGCTGCCAT AACAGCCTTG GAACTACGT TTTCCGAAGC AATTAACCTG ATATTATTTT	3780
GTTGGCGTTC TTCTTCTTTG GCAATAGCAT TCCAGAGATC AGCATCATAT GCTTTAAAT	3840
CATCTTTGTC AAAAATCATA GGTCTTCTCC TTTATTGTGT GACTAGTCCA TTAGTTTGAT	3900
TTTACAATAA GAAAATCAAA CTAACAGATG CGAATAAACC GTTCTGTCAT TTTATCACAA	3960
GTATAGCCAA CTTTTTCATA AAATGCATGA GCACCCAGAC GATGATTGGC AGAATTTAAG	4020
CGGATAAACC CATAACCACA TCTTTTGTCTTCTTCCA ACCCTTGTAG TAAACTTTTA	4080
CCAATACCTT GACCTTGCGC TTGAGGTGAA ACTGCTAAAG CTAAGATATT AAATCCTGCT	4140
TTGGAATAGA GTGATTGCTA AACTTCAGCG TGGACATATC CAAGTAAGAC ATGATTAGCT	4200
GCATCCTCAT AGCCAAGTAG GAAATGATGG GAATCCTGAG ACAGTCTAGC TAGTTGGCTA	4260
GCCGTTTCCT CTGGACTAAA AGTATAACCC AAAGCCTCTT GGTGATGTC ACATATAGCT	4320

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TTCACATCAG TTTCTCTTAA ATCTCTTAGC ATCTCATTCC TCCTCAAAAG AAATCTTTGG	4380
CAACCGAGCA AGAATATCTT CTCGCTTAAT GGCCCTTGA CGTAAGATTT TCACCTTGTC	4440
TCCCCACAAA TTCAAAATAG TTGAATCCTG TCCAGTTAGA AAAGCATCGT CTTCAGACC	4500
CAGAACCTCT TGGTCAAAAT CCTCTAGAAT TTGATTAAAG GTCACTCCAC TCGCCTGACC	4560
TGAGATATTG GCAGACGGCC CAATCAAGGG ACCTGTCTCT CGAATCAAAT CAAGGGTAAT	4620
GGGATGACTA GGCATCCGAA ATCCAACAGT TGCAAGGCCA GAATTGACCC AATAGGGAAC	4680
TGGGTCATTA GCTTCGAGAA TAATGGTCAA GGGACCTGGT AAAAAGATCT CTACAAGTTT	4740
TTGAAGATAA GTTGGCTGAT TCTTTGAAAA GTACAAGATG TCCTCTAAAG AGGCAACATT	4800
GAGATTGAGC GCCTTGCTCT TACGTCGACG TTAAAGCTGG TAAACATGGT CAACTGCTTT	4860
TTCTCTAGC GCCTTAGCAA AGAGACCGTA AACTGTCTCT GTAGGCAAAA CGACAGCTCC	4920
ACCATTTTCC AACTCTTGTC TAATCCTGTC CATCATCAAC GACAACCATC CTATCTTGAC	4980
CAAATTGGTC CTTGAGTGTT CGTACTCGCT TTTAGGAAG ATGTTTCCTA AAAAGTTCAG	5040
GAACACTTTG ACCTTGCTTG TATCCAATTT CAAGGTAAAT CTTACCACCA TCTTTGAGAT	5100
AGTCTTTTGC ATCTTCCGCA ATTCTACGGT AAATAGCTAG GCCATCCTCA TCTGCAAAGA	5160
GAGCTAGATG AGGCTCCGAA TACAAGACAT TCAAGCCTAC CTCTGACTCA TCTTCACGAG	5220
AGATATAGGG TGGATTGGAA ACAATTATAT CATATTTTTC AGAAATTTCT GTAAAACAGT	5280
CAGATTTTTT TAAAAATATT TGAAGATTTT GATTTTTAGC ATTTTCGCTA GCTACATCTA	5340
AAGCATCTTG GGAAATATCT GCTGCCGTCA CTGACCAATC TGGTCTGTTT TTTGCTAGAG	5400
CGAGAGCAAT AGCTCCACTA CCTGTTCCGA TATCTAGGAC CATAAGATTT TTCACAGGAT	5460
TTTCAGCCAG GATAAGCTCC ACCAACTCCT CTGTTTCTGG ACGAGGAATC AAAACCCGTT	5520
CATCCACCTT TAAATGCATT CCATAAAAAT CTGCCTGTCC AATGATGTAC TGAGCTGGCT	5580
TGTGAGCTGC TAGTTGCTGG TAAATATCTT CTACAAATTG TTTTCTTCC TCTGTTGTCA	5640
CCTCCTGCTG GAGGGCAAAA ATAAAGTCTG TAAAGATAG ATTTTTCAGA CTACGATAGA	5700
CAAAAGAGAG GCTTTCGGCT TCCTCTCCTT GTCTTATCAA CTCTTCTTCA AAATTTGAAA	5760
ATAATTGAGC TAATTTCAAT ATTTGTTTAA TTCTTCTAGT TTTTGTGTTT GGTCAATAAG	5820
CACCAAGGCA TCCACAACCT CGTCCAATTT ACCAGACAAA ATCGTATCTA GTTTTTGGAG	5880
GGTCAAGCCG ATACGGTGGT CTGTGACACC GTTTTGTGGG AAGTTATAAG TTCGGATCCG	5940
TTCTGAACGG TCACCAGTAC CGATTGTGCA CTTACGCTCA GCGTCTGCT CATCTTGAGC	6000
AATCTGAGCA AAGTGGTCAG CAACACGGGC ACGGATGATT TTCATGGCCT TCTCACGGTT	6060

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CTTCTGCTGG	GTACGTTCTT	CCTGCATCTC	AACCTTGATA	TTGGTTGGCA	ACTGAACGAT	6120
ACGAACGGCA	GTGCAACCT	TATTGACGTT	CTGTCCACCA	GCACCAGAGG	CGTGATAGAT	6180
GTGACACGA	AGGTCTTTTG	GATCAATGTC	GTATTCAACC	TCTTCAACTT	CTGGCATAAC	6240
AAGAACTGTC	GCTGTCGAAG	TATGAACACG	GCCTTGGCTT	TCTGTCACAG	GAACACGTTG	6300
CACACGGTGG	GCACCTGATT	CATACTTAAG	CTTAGAGTAT	ACAGACTGAC	CTGAAACCAT	6360
AGCAACCACT	TCTTTAAAAC	CACCGACACC	ATTTCATAGAG	GCTTCCATGA	CTTCAAAGCG	6420
CCAACCTTGG	GCTTCCGCAT	ACTTTTGGTA	CATAGTTAGC	AAATCTCCAG	CGAAAAGTGC	6480
CGCTTCGTCT	CCACCAGCTG	CTCCACGGAT	TTCAAGGATG	ATATTCTTGT	CATCGTTTGG	6540
ATCCTTTGGA	AGGAGCAAAA	TTTTCAGTTT	TTCTTCATAT	TCTTCTTTTT	CAGCCTTGGC	6600
ATCTTTGAGT	TCTTGCTTGG	CCAATTCTTC	CAAGTCCGCA	TCTCCGCCTG	ATTCTCTAAT	6660
CATCTCTTCG	GCATCGACGA	TATTTTGAAG	GACTTGTTTA	TACTCACGGT	AGGCTATTAC	6720
GGTGTCACGA	TTGGAAGCTT	CTTCTTTTGA	AAGCTCCATA	AAACGCTTGG	TGTCTGAAAC	6780
GACATCAGGG	TCACTCAGCA	ATTCTCCTAA	TTCTTCATAA	CGGTCTTCTA	CAACTTGTAG	6840
TTGATCATAG	ATGTTCAATT	TTTCTCCTTA	TTTCTCAATT	GTAAATCAT	AGATTGCTAC	6900
TACTTCATTC	TCGATATTT	CCCCAGTTTC	TTTAAATCCA	TAAGTGGGT	AACAAAATCT	6960
TGCCTGTTC	TTTCTGGTT	CATATGACAA	CCAAAGTTTA	TTGCTTAAAC	CTGCTGGCGC	7020
TGTTGGAACA	TAGTCTAGTA	CTTTATCCAT	AATTGGTTTA	AAATATCCTT	GATTTTGAAA	7080
ATTCTTATCA	ATCATAAAAC	GAAATAGTAA	ATAATTTC	CTACTAATTC	CGATCTTTTT	7140
ATCATAAGCT	ATCATCACA	AACCTATAAT	TGCATCATT	TCATAAACTG	CCAATGGAGC	7200
TACAAAATCT	CCATTTTATG	TGTAGACGTA	TGCTTCAGCT	AACTAATTG	CGTTGGTTGC	7260
AATGAATTGT	TTTGATATT	CCTTGACATC	CAAAATTTAA	ACATCAAAAT	AATTTTCCAT	7320
TGTAACATCT	CTTAGTTCAA	TTGTCATAGT	TTTGCTCCTT	GTTAGAGGTT	ATCATTGGCG	7380
CAAAATAATG	TTTACGGCAA	ACTGAGATAT	AGGTTTCGTT	ACCACCAATC	TGGATCTGTT	7440
CTCCATCGTA	AACGGGCAGT	CCATCCTGTG	TTGCAACAC	CATGGTCGCC	TTTTTCTTGC	7500
AATACTGACA	GATGGTCTTG	ATTTCTGCAA	TCTTGCTGTC	TAAAAGCAAG	AGATATTTGG	7560
AACCTTCGAA	CAATTCAATTG	CGAAAGTCAT	TTTTCAAGCC	AAAAGCCATG	ACGGGTATGT	7620
CTAACTCGTC	CACAACACGA	GCTAGGTCGT	AAACATGGTG	GCGTTTGAGA	AACTGGGCTT	7680
CATCGACCAA	AACACAGTAA	GTTTTTCTG	GTAGGCTCTG	GATATAGCCA	AAGATATCCG	7740
TTGTTTCCTC	AATCGCAAAG	GCAGGGCGTT	TCATGCCAAT	TCGACTCGAC	ACATAGCCAA	7800
CGCCGTCACG	CGTATCCAGA	GCCGAGGTCA	TAATCACAAC	ACCTTTTCCT	TGCTCCTCGT	7860



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AGTTATAGGC CACTTTGAGA ATCTCAATCG TTTTACCAGA GTTCATGGTC CCATAACGAT	7920
AGTACAACTG TGCCATGTTT CTTGCTTCAC GTCCATTCTT AAATTTTTCG TACATTCTAG	7980
TATATCATAA TTTTCTTAAG CTTTAAACGG CAAAATGTGG TAAAATAGAA GAAATCAAAA	8040
ACTAGTGGAG GAAGCTATTA TGCCATTGTG ACGCATCGAT TTATTGAAG GACGCACGCT	8100
CGAGCAAAAG AAAGCTCTTG CTAAGGAAGT AACGGAAGCA GTTGTCGCA AACTGGAGC	8160
CCCTCAATCT GCTGTCCATG TCATCATCAA CGACATGCCA GAAGGAACTT ACTTCCCACA	8220
AGGGGAAATG CGTACTAAAT AAGCTAGCTT AAGCAGAATT GCTTAGGCTT TTTCAATCTC	8280
CAAGTAGCAT TCATTGAAGA AATATCCTAA ATTTGTTACA ATTTGAAAAG AAAGTTGGAG	8340
AATTTCCAAG AAAAGAGCTA TTAATTAAAG GAAACATTAT GATTACACGT GAATTTGATA	8400
CCATCGCTGC TATCTCTACT CCACTAGGTG AAGGGGCTAT TGGTATTGTC CGCCTGAGCG	8460
GAACAGACAG TTTTGCTATT GCGCAAAAGA TTTTAAAGG AAAAGACTTG AACAAGGTTG	8520
CCAGCCACAC TCTCAACTAC GGTACATTA TTGATCCTCT GACTGGTAAA GTCATGGACG	8580
AGGTTATGGT TGGGGCTATG AAGTCTCCAA AGACCTTCAC TCGTGAGGAT ATTATCGAGA	8640
TTAACACCCA CGGTGGGATT GCGGTGACCA ATGAAATCTT CCAGCTAGCT ATTCGTGAAG	8700
GGGCTCGGTT GGCAGAACCT GGTGAATTTA CCAAACGTGC TTTTTTAAAC GGTGCGGTAG	8760
ACTTGACACA GGCAGAGGCT GTGATGGATA TCATCCGTGC CAAGACTGAC AAGGCCATGA	8820
ACATTGCGGT CAAACAATTA GACGGCTCCC TTTCTGACCT CATTAACAAT ACCCGTCAAG	8880
AAATCCTCAA TACACTTGCC CAAGTTGAGG TCAATATCGA CTATCCTGAG TATGACGATG	8940
TTGAGGAAGC CACTACTGCT GTTGTCCGAG AGAAGACAAT GGAGTTTGAG CAATTACTAA	9000
CCAACTCCT TAGGACAGCA CGTCGTGGTA AAATCCTTCG TGAAGGAATT TCAACGGCTA	9060
TCATTGGACG TCCCAACGTT GGGAAATCAA GCCTTCTCAA CAACCTCTTG CGTGAGGACA	9120
AGGCTATCGT AACAGATATC GCTGGGACAA CACGAGATGT CATCGAAGAG TACGTCAACA	9180
TCAATGGTGT ACCTCTCAA TTGATTGATA CAGCCGGTAT TCGTGAAACG GATGATATCG	9240
TTGAACAAAT TGGAGTTGAG CGTTCGAAAA AAGCTCTTAA GGAAGCTGAC CTAGTTCTGC	9300
TAGTACTAAA CGCTAGTGAA CCACTAACCG CCCAAGATCG CCAACTCCTA GAAATCAGTC	9360
AGGAGACTAA TCGCATTATT CTTCTTAACA AAAGTGACCT GCCTGAAACG ATTGAACTT	9420
CGGAACTACC TGAAGATGTC ATCCGCATTT CAGTTCTTAA AAATCAAAAC ATCGATAAAA	9480
TCGAAGAGAG AATCAACAAC CTCTTCTTTG AAAATGCTGG TTTGGTTGAG CAAGATGCTA	9540
CCTACTTGTC AAACGCCCGT CACATTTCTT TGATTGAGAA GGCCGTTGAA AGCCTACAAG	9600

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CTGTAAACCA AGGTCTTGAA CTAGGGATGC CAGTTGACTT GCTTCAAGTT GACTTGACCC	9660
GTACTTGGA AATTCTAGGA GAAATCACTG GAGATGCTGC TCCAGATGAA CTCATCACCC	9720
AACTCTTTAG CCAATTCTGT TTAGGAAAAT AAGAAAAATC CATGATCCTT CATTTCGGTCA	9780
TGGATTTTAG GTTCTATAAT ATTTGTAGTG GGTAAATCCA CTATAGATAT TATGGAGCCT	9840
ATTTTATTGT AGAAAAAAG TCCCATATGA CCTATAATGA AAAGCGACAA AACAACTCAT	9900
TAGAAAGAAT CATATGGAAC AATTACATTT TATCACAAAA TTAGTAGACA TTAAAGACCC	9960
TAATATCCAG ATTTTAGACA TCATCAATAA GGATACACAC AAGGAAATCA TCGCCAAACT	10020
GGACTACGAC GCCCCATCTT GCCCTGAGTG CGGAAACCAA TTGAAGAAAT ATGACTTTCA	10080
AAAAACCTTC TAAAATTCCT TATCTTGAAA CGACTGGTAT GCCCCACTAGA ATTCTCCTTA	10140
GAAAGCGTCG ATTCAAGTGC TATCACTGTT CAAAAATGAT GGTCGCTGAA ACTTCTATCG	10200
TCAAGAAGAA TCACCAAATC CCTCGTATCA TCAACCAAAA GATTGCTCAA AAGTTAATTG	10260
AAAAGATTTC TATGACTGAT ATTGCCCCATC AGCTTTCCAT CTCAACTTCA ACTGTTATTC	10320
GTAAGCTCAA TGACTTTCAC TTTAAACATG ATTTTCTTG TCTTCCTGAG ATTATGTCTT	10380
GGGATGAGTA TGCTTTTACA AAAGGGAAGA T	10411

(2) INFORMATION FOR SEQ ID NO: 90:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2393 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 90:

GTTTTGGGTT CTGGAAATTA TCAGATGGTT GGAAAGCCG TCCACATCAA GATAGTGTTC	60
GGAGATTTAA GTTTAAATTG AAGAACTAA CACAGAGGAA ATGGAGTATA GACCTAACAA	120
GACGTATTGA GCAACTGAAT TTGTCTATTC GAGGATGGAT AACTATTGC TCATTGGGAA	180
ATATGAAAAG TATAGTCGCC AGCATAGATG AGCGCTTGCG TACTCGCCTA CGAGTGATT	240
TCTGGAAGCA ATGGAAGAAG AAATCGAGAC GATTATGGGG ATTGCTTAAG TTAGGAGTTC	300
CTAAATGGAT AGCAGATAAG GTATCTGGCT GGGCGACCA TTATCAATTA GTAGCTCAGA	360
AGTCGGTACT TAAACGTGCT ATATCAAAAC CAGTCCTGGA AAAACGTGGA CTGGTTTCGT	420
GTTTGGATTA TTACCTTGAA CGACATGCGT TAAAAGTTAG TTGAACCGCC GTATGCCAAA	480
CGGCACGTAC GGTGGTGTGA GAGGGGCTAG AGATTATCCC CTACTCGATT AACTCCCCTG	540
AAATTTATTT TAATTATGCA AATTCACGT ATTTTGTATG CTGAGACGAC GATCCTGGGA	600

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ACTTTTCAGA TATTTTGTG ACTATCTAAA TCTATCATTG GAAAAGCTTA GAGCGCCAAA	660
GGATTGAGC GTTTTCTGA TTTTAAAGAC TTTTCCAGT CTCTTTTTCG ATTGAAGATG	720
TAATTATTCT ACTAACTAAC TAACTTCTTA GTACTAGCCA ACAACGATAA TCATAATTCC	780
TCCTAAAATT AGGAATAATA AAGGCAATAG TTTTGTGTTT TTCATGTAAA AAACCTCACT	840
TTTGTGTTCT GCTATTTTAT GCTAAAATAT TAAAAATCAA ATTTAATTCC AAAGTTTGTA	900
ACTAAAGGGG GAGCGCTACA TGTCTAATTC ATTTGTCAAG TTGTTAGTCT CTCAATTATT	960
TGCAAAATTA GCAGATATTT TCTTTAGAGT AACAAATCATT GCTAACATAT ACATTATTTT	1020
AAAATCAGTA ATTGCCACAT CACTAGTTCC TATCTTAATA GGAATATCCT CTTTGTGTC	1080
GAGTCTTTTA GTTCCGTTGG TTAATAAAAG GTTAGCGCTA AATAGGGTTT TATCTTTATC	1140
TCAATTTGGA AAGACTATAT TATTGGCGAT ACTGGTAGGA ATGTTTACCG TAATGCAATC	1200
CGTAGCGCCT TTGGTGACCT ATCTATTTGT TGTGCAATT TCCATACTAG ATGGTTTTC	1260
AGCACCCGTT TCCTATGCTA TTGTGCCACG CTATGCGACC GATTGGGTA AGGCTAATTC	1320
AGCCTTATCA ATGACTGGTG AAGCTGTTCA ATTGATAGGT TGGGGATTAG GTGGACTCTT	1380
GTTTGCAACA ATTGGTCTGT TACCTACCAC GTGTATCAAT TTAGTCTTGT ATATCATTTT	1440
TAGCTTTCTG ATGTTATTTT TTCCTAACGC TGAAGTGGAG GTGTTAGAGT CAGAAACTAA	1500
TCTTGAAATT TTGCTCAAAG GTTGGAAAGT AGTTGCTAGA AATCCTAGAT TAAGACTTTT	1560
TGTATCAGCA AATTTATTGG AAATTTTTC AAATACGATT TGGGTTTCTT CCATTATACT	1620
TGTTTTGTA ACGGAGTTAT TAAATAAAAC GGAAAGTTAC TGGGGATATT CTAATACACC	1680
ATACTCTATT GGTATTATAA TTAGTGGCTT AATTGCTTTT AGGCTATCTG AAAAGTTCTT	1740
TGCTGCTAAA TGGGAACCCC AATTATTCAC CCCAAATCTA AAAACCATCC AGAATCCTTG	1800
CCTTAGCTTA GATCCTGGAT GGTTCCTTTT TTCACCCAAT GGGTGTTTTT TACTAGACAA	1860
AAAAGAGTTT CCCCTTTATG GTATAAGTGT AGAAAAAAC AAAAAAGAA AGGAACTCA	1920
CATGAACAGT TTACCAAATC ATCACTTCCA AAACAAGTCT TTTTACCAAC TATCTTTCCA	1980
TGGAGGTCAT TTAACCCAGT ATGGTGGTCT TATCTTTTTT CAGGAACTTT TTTCCAGTT	2040
GAAACTAAAA GAGCGGATTT CTAAGTATTT AGTAACGAAT GACCAACGCC GCTACTGTCG	2100
TTATTCGGAT TCAGATATCC TTGTCCAGTT CCTCTTTCAA CTGTAAACAG GTTATGGAAC	2160
GGACTATGCT TGTAAGAAT TGTCACTGA TGCCTACTTT CCAAAATTGT TGGAAGGAGG	2220
GCAGCTTGCT TCACAGCCAA CCTTATCCCG TTTTCTTTCC AGAACTGACG AGGAAACAGT	2280
CCATAGTTTG CGATGCCTCA ACCTTGAATT GGTGGAATTC TTTTACAGT TTCACCAGCT	2340

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AAACCAACTC ATTGTAGATA ACGATTCTAC CCATTTTACA ACTTATGGCA AGC 2393

(2) INFORMATION FOR SEQ ID NO: 91:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 4762 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 91:

TTGTATCTT TTTAGGTCTC TTCAATCCA AACCCTTTAA ACTATACGTC ATTTCCGGTTC	60
CTGCAAGTCT TGTGGTAATT TTAGGTTTGA TTTTACTTTT CTTTTCACAA GAGCCTCTGC	120
ACGCTTCTTA TTTGATGGTC GTCTCCCTG TTTTCTACT TTTATGGTA ACCAATATTA	180
AGAGTCAACA GAGGGGGCGT AGTGCTAGAA GAAGCCGAAG AGAAACGCCA TTATGCCTAT	240
GGAGTCGTTT CTTCAAAGGA AATCTATATC TGCTAGTTTT TCGGTTTGTC TATCTTTTGT	300
CTGTTCCCTT TTTGATGAAG TTTGTCCTTT ATCCAGTACC TTATCAAGAA CGTAATCGTC	360
TTGCTGATTT GGTAAAAGAG GAGACAAATA CGGAAGATGC TATCTCATGC ATGGGATGAT	420
ACTGCGACTC TTTATCGTAA GAGTGAGCGC TTGTCCCATC GGCGATTTTG TCCCCGTTGC	480
ACTATACAGC AACTGAGGAA AATCGTAATA AGTTACTTAA TGACTTGAAA GAAAAACAAC	540
CTAAGGTGAT TGTGGTAAAT GATAAGGTGG TAGTCTGGTC TGAAGTGAA AACTCTTAA	600
AAGAAAATTA CCAACRAAGTA AAGACTGATT ACTCAGAGTT TAAAGTCTAT AAAATTAAAT	660
AACCAAATCA ATATCTTG TG TATTTTAAA AATTTTAGGA TTTTAAACAC AAGATATTGA	720
TTTTTCTTT TAGAGTGGTA TAATACTTTT TAGAAGAAGC ATTTTAGAAA AGAGCATGCA	780
TATGATTGCA CTAGAAGAAA AAATTACAAT TTTGCCAACT CTCTTCGTCG AGAAACGAGA	840
TGGGAGACGT GTTGATTTTG ATGTGGACAA GATTGACAAG GCTCTCCACA AGGCGGCTGA	900
CAAGGTTATG GATGTGACAC CCCTGGTTGA AAAATGCCTC AATGATCTGA CTGAGCGAAT	960
TATTACAGAA ATTCATAGTC GCTTTCACCA GGAATTAAG ATTTACGAAA TTCAAAATAT	1020
CGTAGAACAT GAACTCCTTG AAGCCAAAGA ATATGCGCTG GCTCAGGACT ATATTACTTA	1080
TGGGACACAG AGGGATTTTG AGCGCTCAAA AGCGACGGAT ATCAACTTTA GTATTCTATA	1140
ACTTCTCAAC AAAGACCAGA CAGTTGTCAA TGAACCGCT AATAAGACA GTGATGTCTT	1200
TAACACTCAG CGTGATTTGA CAGCAGGGAT TGTTGGGAAA TCAATCGGAC TGCAAATGCT	1260
TCCTAAGCAC GTAGCCAATG CCCACCAAAA GGGGATATC CACTATCAGC ATTTGGACTA	1320
CAGTCCCTAT ACCCCTATGA CCAACTGCTG TTTGATTGAT TTTAAGGGTA TGTTGGAAAA	1380

717

TGGTTTTAAG ATTGGAAATG CAGAGGTAGA GAGTCCCAAG TCTATCCAGA CTGCGACAGC	1440
ACAGATTTCT CAAATCATTG CCAACGTTGC TTCTAGCCAG TACGGTGGCT GTTCAGCTGA	1500
CCGTATCGAT GAAATTTTGG CGCCTTATGC AGAGAAGAAT TATCAAAAAC ATCTCAAAGA	1560
TGCAGAAGAG TGGGTATTGC CTGAAAAACA GGAAGATTAC GCTTGGAAGA AAGCGCAAAA	1620
GGACATCTAC GATGCCATGC AATCTCTTGA GTATGAAATC AATACTCTCT TCACTTCAAA	1680
TGGACAAACA CCTTTTACTT CGTTAGGTTT TGGTCTGGGA ACCAGTCGTT TTGAACGAGA	1740
AATTCAAAAA GCTATTTTAA ACATTCGCAT CAAGGGTCTT GGTTCAGAAC ACCGTACGGC	1800
TATCTTTCCT AAACCTATCT TTACGCTTAA AAGAGGCCCTC AACTTAGAGG AAGGAACTCC	1860
CAACTATGAC ATCAAGCAGT TGGCTCTAGA GTGTGCAACC AAGCGGATGT ATCCAGACGT	1920
CTTGTCTTAT GATAAGATTG TTGATTTGAC AGGTTCTTTC AAGGTGCCTA TGGGCTGCCG	1980
TTCTTTCCTT CAAGGGTGA AGGATGAAAA TGGTGTAGAA GTCAATTCAG GTCGCATGAA	2040
TCTGGGTGTT GTGACGGTTA ATCTGCCTCG TATTGCTCTT GAGTCTGAAG GTGATATGAA	2100
TAAGTCTGG GAAATCTTCA ACGAGCGAAT GAATATCGCA GAAGATGCTC TTGTTTACCG	2160
TGTCGAACGC ACTAAAGAGG CGACACCAGC GAATGCTCCT ATTCTTTATC AGTACGGTGC	2220
TTTTGGCCAT CGTCTAGGTA AAGAAGAAAG TGTTGACCAG CTCTTTAAGA ATCGTCGTGC	2280
GACCGTTTCG CTGGGCTATA TCGGCTTGTA TGAAGTAGCG ACAGTTTCTT TTGGTAACAG	2340
CTGGGAAAGT AATCCAGATG CTAAGGAATT CACGCTAGAC ATCATTCACG ATATGAAACG	2400
CCGTGTAGAA GAGTGGTCAG ACCAATATGG CTACCATTTC TCTATCTACT CAACACCATC	2460
CGAAAGTCTG ACAGACCGTT TCTGCCGACT AGATATAGAC AAGTTTGGCT CTATTCCTGA	2520
TATCACAGAC AAGGAATACT ACACCAACTC TTTCCACTAC CATGTTGTA AAAATCCAAC	2580
ACCGTTTGAA AAATTGGA CTAGAGAAAGT CTATCCGGAA GCAGGTGCGT CAGGTGTTT	2640
CATCCATTAT TGTGAGTATC CAGTCCTTCA GCAAAATCCA AAGGCCTTGG AAGCTGTCTG	2700
GGATTATGCT TATGACCGTG TAGGCTATCT AGGCACCAAT ACTCCGATTG ACCGTTGCTA	2760
CAAGTGTGAC TTTGAAGGGG ATTTTGAACC AACTGAGAGA GGGTTTGCTT GTCCAAACTG	2820
TGGCAATAGC GACCCTAAAA CAGTAGATGT GGTGAAACGA ACTTGTGGCT ACCTAGGTAA	2880
TCCTCAAGCA AGACCGATGG TCAACGGGCG TCACAAGGAA ATCGCTGCGC GTGTCAAACA	2940
TATGAATGGT TCAACGATTA AAATAGCTGG GCATCAAGTA ACAAATTAGA AAGAAATGAA	3000
ATGGGAAAAT ATCAACTAGA CGATAAGGGG CGCGCACAAAG TGACCCGTTA TCACGAGAAA	3060
CACTCTAAAG GTGGAGCTGG TAAGAAAGAA CGCTTGCTTA GCTTCAGACA ACAATTTTAA	3120

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AACAAGAACA AGAAAAAATA AAAGTGAGAG CCAGCTCTCG CTTTCTCAT AGTGGGAGGT	3180
AAGGATGGAA TTACGCAGAC CAAGATTAGC GGATAAGAAA GCTGTTTTAG ATATGATGAC	3240
AGAGTTTGAA AAATTTCACT CGCCTCACGA CGGCGGTTTC TGGGATACAG AGAACTTTGT	3300
GTATGAAGAC TGGTTAGAAA GCAATCAGGA ACAGGAAATG GGGATTAATC TGCCTGAAGG	3360
ATGGGTTTCT GCAATTCAGT TAGTGGCTTT TTCTGAGAAA GGTCAAGCAG TTGGATTTCT	3420
TAATCTCCGG TTGCGCCTCA GTAACCTTCT ACTAGAAGAA GGTGGCCACA TTGGCTACTC	3480
CATTCGTCCA TCTGAAAGAG GCAAGGGTTA TGCAAAAGAG ACTCTCCGTC AGGGCTTGCA	3540
AGTTGCTAAG GAAAAGAACA TCAAGAAAGC TCTGGTGACC TGTAGTGTA ATAATCCTGC	3600
TAGCAGAGCA GTCATTCTAG CAAATGGTGG AATATTTGAG GATGCTCGCA ATGGAGTCGA	3660
GCGTTATTGG ATAGAGGTAG CGAATGAATA ATCCAAAACC ACAAGAATGG AAAAGCGAGG	3720
AACCTTAGTCA AGGTCGTATC ATTGACTACA AGGCCTTTAA CTTTGTGGAC GCGAAGGCG	3780
TGCGCAACTC TCTCTATGTA TCAGGCTGTA TGTTCCTACTG CGAGGGATGT TATAATGTTG	3840
CGACTTGGTC TTTAATGCT GGCATTCCCT ATACAGCAGA ATTAGAAGAG CAGATTATGG	3900
CAGACCTTGC CCAACCCTAT GTTCAAGGCT TGACTTTGCT GGGAGGGGAG CCTTTTCTCA	3960
ATACTGGGAT TCTCTTGCCA CTTGTTAAGC GGATTCGGAA GGAATTGCCA GACAAGGACA	4020
TCTGGTCCTG GACCGGCTAC ACTTGGGAAG AAATGATGTT GGAACTCCA GATAAACTGG	4080
AATCTTGTG ACTGATTGAC ATTCTGTGCG ATGGAAGATA TGATCGAACT AAGAGAAATC	4140
TTATGCTCCA GTTTCGAGGT TCATCTAACC AACGAATTAT CGATGTGCAA AAATCGCTCA	4200
AAAGTGGGCA AGTAGTGATT TGGGACAAGC TCAATGACCG AAAAGAAAGC TATGAACAGG	4260
TGAAGAGAGA ATGAAGAAAA AGGACTTAGT AGACCAACTA GTCTCAGAGA TCGAGACGGG	4320
GAAAGTCAGG AACTGCGGAA TATACGGTCA TGGAGCTTCA GTAAATCAA CCTTTGCACA	4380
GGAATTGTAC CAAGCTTTAG ATTCTACTAC AGTAAATTG CTAGAGACAG ATCCTTATAT	4440
CACCTCAGGA CGCCATCTGG TAGTACCCAA GGACGCGCCG AATCAAAAGG TGACAGCCAG	4500
TCTGCCAGTG GCGCATGAAC TGGAGAGTTT GCAGAGAGAT ATCCTTGCTT GCAGGCGGGT	4560
ATGGATGTCT TGACAATTGA AGAACCTTGG AAGGCTAGTG AGGTCTTGTC TGGAGCCAAA	4620
CCAATTTTGA TTGTCGAAGG GATGTCTGTT GGCTTTCTAC CCAAGGAACT CTTTGAAAAA	4680
ACCATCTGTT TCTACACGGA TGAGGAGACC GAATTAAAGC GACGCCTTGC TAGAGATACG	4740
ACTGTGAGAA ATCGCGATGC GG	4762

(2) INFORMATION FOR SEQ ID NO: 92:

(i) SEQUENCE CHARACTERISTICS:

719

(A) LENGTH: 3832 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 92:

GATGCAGGTT TCGACCCACA TATTCCAGAA AATTACTTTA AAGATGATGA TGTTAATCAG	60
GTACCTTGTC TTTGTTGGTC TTCATCTGCA GCCCTCTTTT TCAGTAATTG GGTAGACCAT	120
GCGGTCTATC AGGAGACGCC TTTTGATTGG AGAAAGATAG AAGATGATGC ATCTGCATAT	180
GGGTATTTAT AAGAGGAATT ATGACATATT TAGACGCTTT TAAATCAGGT ACCTTGGTTT	240
TACCGAGTGC CCTGCTCTTG CATTTTAAGG AACTCTTTCC TTCTAGCGAC GATTTTCTGG	300
TTTGCCAATT TTTCTATTTG CAAAATACGA CAGGCTTAGA AGAAATGTCG CCAAGCCAGA	360
TTGCTGAAAG GATTGGCAAG GAAATTTCCG ATGTCAACCA GTCCATTTCT AATCTGACCG	420
AAAGGGGACT GCTCCAGTAT CGTACTATCG AATTAAATGG CGAAATTGAA TTGCTCTTTG	480
ATGCTAGTTT GGCCTTGGA CGTTTGATG ACCTGTTTGG AGCAGTTCAT TCAAGTTCAG	540
ACCAGCTAAC ACCTCAAAAC CAGCTCAAGG ATTTGGTGGA AACCTTCCAG CAGGAGTTGG	600
GACGATTGTT GACGCCTTTT GAGATTGAGG ATTTGACCAA GACACTAAAG GAAGATGGAA	660
CCAGTGCTGA CTTGATTAAG GAGGCTCTTC GTGAAGCTGT TTTGAATGGA AAACCAAAC	720
GGAAGTACAT TCAGGCGATT TTGAGAACT GGGCCCATGA AGGAATCAAG AGTGTGGCTC	780
AAATGAGGC CAAGAGAGCA GAAAGAGAAG CAAGCAATCC TCAGTTGACA CAGGTATCTG	840
CAGATTTTAT AAATGCCATG GATCTCTGGA AGGATTAATC CATGCAAGTA GGCTTGAAAT	900
CCGAGTAAGA TTTGCAAGCT GTGTATAATT GTGATAGAAT AAATAGAAAA TAAATTGAAA	960
AAAGAGGTAT GTGAAATGTC ACGTAAACCA TTTATCGCTG GTAAGTGGAA AATGAACAAA	1020
AATCCAGAAG AAGCTAAAGC ATTCGTTGAA GCAGTTGCAT CAAAACCTCC TTCATCAGAT	1080
CTTGTTGAAG CAGGTATCGC TGCTCCAGCT CTTGATTTGA CAACTGTTCT TGCTGTTGCA	1140
AAAGGCTCAA ACCTTAAAGT TGCTGCTCAA AACTGCTACT TTGAAAATGC AGGTGCTTTC	1200
ACTGGTGAAA CTAGCCACCA AGTTTGTAAA GAAATCGGTA CTGACTACGT TGTATCGGT	1260
CACTCAGAAC GCCGTGACTA CTTCCATGAA ACTGATGAAG ATATCAACAA AAAAGCAAAA	1320
GCAATCTTTG CGAACGGTAT GCTTCCAATC ATCTGTTGTG GTGAATCACT TGAACCTTAC	1380
GAAGCTGGTA AAGCTGCTGA ATTCGTAGGT GCTCAAGTAT CTGCTGCATT GGCTGGATTG	1440
ACTGCTGAAC AAGTTGCTGC CTCAGTTATC GCTTATGAGC CAATCTGGGC TATCGGTACT	1500

720

GGTAAATCAG CTTACAAGA CGATGCACAA AAAATGTGTA AAGTTGTTGG TGACGTTGTA 1560  
GCTGCTGACT TTGGTCAAGA AGTCGCAGAC AAAGTTCGTG TTCAATACGG TGGTCTGT 1620  
AAACCTGAAA ATGTTGCTTC ATACATGGCT TGCCAGACG TTGACGGTGC CTTGTAGGT 1680  
GGTGCCTCAC TTGAAGCTGA AAGCTTCTTG GCTTTGCTTG ACTTTGTAAA ATAATCAGTA 1740  
AGTAGCAAAA GCTAGGTGGA ACAGCATTCA GATGTCTGTT ACATTTTTTA TAGGAGAGAA 1800  
AGATTGAAAA CAAAAATTGG ATTAGCAAGT ATCTGTTTAC TAGGCTTGGC AACTAGTCAT 1860  
GTCGCTGCAA ATGAAACTGA AGTAGCAAAA ACTTCGCAGG ATACACGAC AGCTTCAAGT 1920  
AGTTCAGAGC AAAATCAGTC TTCTAATAAA ACGCAACGA GCGCAGAGT ACAGACTAAT 1980  
GCTGCTGCCC ACTGGGATGG GGATTATTAT GTAAAGGATG ATGTTCTAA AGCTCAAAGT 2040  
GAATGGATTT TTGACAACTA CTATAAGCCT TGGTTTTATA TTAATTCAGA TGGTCGTTAC 2100  
TCGCAGAATG AATGGCATGG AAATTAATAC CTGAAATCAG GTGGATATAT GGCCCAAAAC 2160  
GAGTGGATCT ATGACAGTAA TTACAAGAGT TGGTTTTATC TCAAGTCAGA TGGGGCTTAT 2220  
GCTCATCAAG AATGGCAATT GATTGGAAAT AAGTGGTACT ACTTCAAGAA GTGGGGTTAC 2280  
ATGGCTAAAA GCCAATGGCA AGGAAGTTAT TTCTTGAATG GTCAAGGAGC TATGATGCAA 2340  
AATGAATGGC TCTATGATCC AGCCTATTCT GCTTATTTTT ATCTAAAATC CGATGGAAC 2400  
TATGCTAACC AAGAGTGGCA AAAAGTGGGC GGCAAAATGGT ACTATTTCAG GAAGTGGGGC 2460  
TATATGGCTC GGAATGAGTG GCAAGGCAAC TACTATTTGA CTGGAAGTGG TGCCATGGCG 2520  
ACTGACGAAG TGATTATGGA TGGTACTCGC TATATCTTTG CGGCCTCTGG TGAGCTCAAA 2580  
GAAAAAAAAG ATTTGAATGT CGGCTGGGTT CACAGAGATG GTAAGCGCTA TTTCTTTAAT 2640  
AATAGAGAAG AACAAGTGGG AACCGAACAT GCTAAGAAA TCATTGATAT TAGTGAGCAC 2700  
AATGGTCGTA TCAATGATTG GAAAAAGGTT ATTGATGAGA ACGAAGTGA TGGTGTCTAT 2760  
GTTCTGCTAG GTTATAGCGG TAAAGAAGAC AAGGAATTGG CGCATAACAT TAAGGAGTTA 2820  
AACCCTCTGG GAATTCCTTA TGGTGTCTAT CTCTATACCT ATGCTGAAAA TGAGACCCAT 2880  
GCTGAGAGTG ACGCTAAACA GACCATTGAA CTTATAAAGA AATACAATAT GAACCTGTCT 2940  
TACCCTATCT ATTATGATGT TGAGAATTGG GAATATGTAA ATAAGAGCAA GAGAGCTCCA 3000  
AGTGATACAG GCACTTGGGT TAAAATCATC AACAAGTACA TGGACACGAT GAAGCAGGCG 3060  
GGTTATCAAA ATGTGTATGT CTATAGCTAT CGTAGTTTAT TACAGACGCG TTTAAAACAC 3120  
CCAGATATTT TAAAACATGT AAAGTGGGTA GCGGCCTATA CGAATGCTTT AGAATGGGAA 3180  
AACCCTCATT ATTCAGGAAA AAAAGGTTGG CAATATACCT CTTCTGAATA CATGAAAGGA 3240  
ATCCAAGGGC GCGTAGATGT CAGCGTTTGG TATTAAGCGA TGATTTGAAA GAGGGATGTG 3300



721

ATAGTAGCAC CCTCTTTTTC TTTGTTTAT GATAGTTCAT CCTCGAGTAA ATTCAAGTTC	3360
TTGCTCGGAA ATGAAGCTTA TATAGTAGAT TGAATATAGA CAAATACCTT GTGATTGGTA	3420
AAACATTTTA GAAATTCATT TACCTTTCCT AATCGACTTG GTTTCATCTT ATTTCAATCT	3480
ATTATAGTAT TGGGGAATTT CTTCAAACCA CATCAGCTTG GTCAGTTCTA CCTGCGACCT	3540
CAAACTTGT GCTTTGGTCA AGCTGGGTTT AGTTTCCTAG TTTGCTGATG GATTTCCATT	3600
GACTATAAGC ATCCAACCCT CTTTTGTCT TCTAAAGAAT TCTTAAATTA TCAGTCTATT	3660
GCAACTTTTC TCATATAAGT TCTTTGTCTT GCTATTGGTT TTCCTTAGTA GTATACTAAG	3720
GTAGTAATCA TTAAGAAGTG GTTACAAAAA ATAATGAATG AGGTAAAGAA AATGGTAGAA	3780
TTGAAAAAAG AAGCAGTAAA AGACGTAACA TCATTGACAA AAGCAGCGCC GG	3832

(2) INFORMATION FOR SEQ ID NO: 93:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10690 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 93:

TGAAAAAATC CTCATGAACC TGGCGCCAAT AGACAAGTGT CTTGTTTCCC TCACCTTCCT	60
TATAGGCATG GTCAGCTGAC ACTCGATTGA AGGGTTTAAC AGAAACCTTT GTAATTTCGA	120
CAATGCAGAC AGCCTGATTT TGACTATCTA AAATGACATC GAAGGTCCCT ACTTGGGGAA	180
GTGGTTCGTC TTCTAGCACA TAGAGGTCAT AGGCTGATGC TGTGCTGTC TTTTCTCCTT	240
TAAACACCAA ATCCGCTAAA AGGTCTGGTT CAACTCCAAA AGCCCAGGCA TCGATTTTCAT	300
CTCCGATCAA AGGATTGATT TGCTTGATT TATTCCACAT TTCTTGCGGT ATCATGGGTG	360
CTCCTTTGTA ATTTTACT TTCTTCTTT ATGTGTTTAA GATGATCTGG ATGGTCAATC	420
TCTAAATCAA AAATCTCTGG AATAGAACTG TAGTGGATAA TGCACCTGAT ACCCAACTGA	480
TTCATTTTTT GTATGAAAGA AGTATTCAGA TAGCCTGCTA CAGCAAAATC AATCTTGTTT	540
TTTCTTGCTT TATCCTGCAT ATCTCTTAGC ATATCTAACA TTATTGGACT TTCCATATCA	600
TGCCATTGAC TGTTTCTCAT AGTCGCAAAA ACAAAGGAAG TCAAATCATT CATTCCAAC	660
ACAATCTTTG AAATGCCCGT TTCCAGTATA CTAGATAAGT CAAAATACGC TGACGGTAAT	720
TCAATCATCG TTCCGACTTT CCCAGTAAAA CCCTGCTGAC GCAATACTGT AATAGCTTGT	780
TTTAATTGGT CGGCATCATT GACAAAAGGA AAGATAACAG ATAGATTGGG GTTGGTTTGA	840

722

TAAACTTCTG TAACGACATG TGCTTCAGCC TGAAATTCAT CCAAACACGC CAGTAAACGC	900
CTAGTTCCTC TATAGCCAAA CAAGGGATGC CCTTCGTCAA AAAACTCTTT AGTCCCCACT	960
AAACAATTGG CTTCTGTATT CGTTAATTCA GTAAAACGAT ACCAAACTTC CTTACCTAAG	1020
TAAAAGGAGC AAATAGTATC AAGATAATCT TTCACAAATT CCTGACAACT TTGTAATAGT	1080
ATATTTTGAT TGAGCTCTCT CAATAAGTAT TCCCCACGAA <del>TCATGCCGAC</del> GTGGTGAAAT	1140
AGTTGAGGAT AAATTTTTTC AAGAAATTTT TCGCCACTAA GGGCAAGTTG ATTTCTCATC	1200
ATTACCTTC CAATTCATGT AAGAAGTCTT GTCCAGTTCT GGAAATCCTA ATAATTCAGA	1260
CTTAACCTTC AAGACTAATG GCGATGCATT TTCTTCTGTA ATCTCTTGAA TATCCATCCA	1320
AATATATCCA AGTGAATCAT TCGCACCATC AGACACAGCT TCCGAAATCG TAACTTGAGG	1380
TGCACTCTCA TTCATTTCOA CATCATACAA GGCTATGACA TGGTGAACCA TAAAATTTTT	1440
TAACTCTTCC CTGACGAAAA CATCGTAGAT TCGAGGATTA GAGTAGCTTC TAACAGTAAA	1500
TCCCCTCTCT TCCATAACTT CTCTAGTCAG CGTTTCGGTC AGTCCTTCAC CAAGTTGCTG	1560
ACTGCCTCCA GGTAGATCAT ACCGATGTTG ATAAGGGCCT CTCGTTTTTT CAATGCAAAG	1620
TAACTTTCCA TTTTCAAAGC AAACACAGTA GACCCCAAAG TGATTTTTGA TTTCATCCA	1680
ACTCCTCCTA CTTCAAAGAC CAGCCACCAT CTATTGTCAA GATTTGTCTT TGCATGGCGC	1740
TCGCTTTTTCC ACTTGCTAAA AAAAGACTAA GCTCTGTAT TTCCTCTGGC TCAATCCAGC	1800
GCTTGATTGG GGTTCACATA GCCACCCAGT CAGCCAAACC ACCTGGTTCA AAATCCGAG	1860
CGGTCATAGC TGTCTTGACT GTCCTGGAG CGATACCAAA GACCTGAATC CCAGCTTCAG	1920
CATAGTCTAG AGCCAACTGC TTGGTGAAGC CAGCCAAGGC ATGCTTGGAT GAAGTATAGG	1980
CGTGACCACC TCCACCTGCT AGGCTAGAAG CAATGGAACA CATATTGATG ATGATTCCCT	2040
TTTTATTTTC CAGCATTTGT GTCAAATAAT ACCGAGTCAA CTCTACTGGA ATAATGTAGT	2100
TGATTTCAAA AATCTCTTGA ATGTCCTGCG CCGTTTGTTC CAACAGTGGT TTGTAATCAT	2160
CCAAAACCTC AGCAGTATTA CAAAAACAT CCACCTGAGG GCACCACTCA AAAATAGGTT	2220
CCAAGTCCAA GGTCAAATCT CTCTGTAAAA AGCGAAAATC ACCCTCTAAG AGTGGCTTTT	2280
CACCTTGGTC AACTCCATAA ACTTGATAGC CCTTCTCTAA AAAGAGGCGA GCTTGAGCCA	2340
ATCCGATCCC TGAACCTACT CCTGTAATGA GTACACGTTT AGTCATGCAC TTCTACCCAA	2400
TCCGTTGCCA AAACATCACA AACTGTCGGG CTCCACATGG AAAAACCTTC TCCTTCGCCA	2460
GAAACGTTGA TTAGGAAATA AGGTGTCATT TCAAGTGCAA GCCCATTTTG CTCGATGGTA	2520
TCAAAGAGTT GGACATAGTT TTCCGCACCT CCCCACCCAG TTCGTACATA TTTTCTCTTA	2580
GCCTTTAACC CAGGCAGGAT CTCTCAAAT GTCATGTTTT TCTCCTTTAA TTCTACATTC	2640

723

TTCATTTAAT TATAGCAAAA AACCGCTTTA TACGGCTTTT TGAATGTGAG TTATTCAAAC	2700
CTGCTACTAC TTACGGCAAA TTATTCCTG CAGCAAGATA AATTCATAC CATTCTTTTC	2760
TTGTTAAGCT AAAGTTTGCC GCTCGGCTAA CTTCTCTCAA GTGCTTAGGA TTTGTTGTAC	2820
CTACGACTGC CTGCATTTT GCTGGATAAC GCAATATCCA AGAAATGGCA ATAGTTGAAG	2880
AGGTTACTCC ATATTTAATA GCTAAACGAT CAAGTACTTG ATTTAAAGCT TGAAATTTCT	2940
CATTTCCAAC AAAATTCCCT TTAAATACC CGAATTGTAA GACAGACCAT GCTTGAATGA	3000
CCACATCGTG TAATTGGCAA TATTCAAAA TGCTGCCATC TCGCATAGCT GCTTGAATGA	3060
CTTCCATATT AACATGAAAA GCTGATTCAA ATCCTGGAGT AAAAGCCGCA CTCAATTGTA	3120
GCTGATTAAC AGCTAACGGC TGCTTGACAT CTTTTTAAAG CAACTCCATC ATCATAGGAT	3180
TTTGATTAGA AACTCCAAAA TCTCGAATT TACCTTGTTT ATAAAGGAGA TTAAAGGCTT	3240
CTGCTACTTG GTCAGATTCC ATCAAAGCAT CTGGTCGATG AAGGAGCAAG CTATCTAGAT	3300
GATCAATCTT CAATCTTGC AAAATACCGT CTAATGATT TATAATATAG TCCTTAGAAA	3360
AATCAAAATA GGTAAATTCT TCAATGCGAA TGCCACATT GGAATGAATC CACATCTTTT	3420
CTCTTAAATC TGGACGATT TTTAGGACAA GACCTAACAG TTCTTCACAA CGACCACGAC	3480
CATAAATATC AGCCAAGTCG AAGGCATTGA TTCCAACAGA AAGTGCTGTT TCTACAAGCT	3540
CTTCAACTTC TTTTACAGAT TTATCTTTTA TTCTCATCAT TCCGAGAACA ATTTCTGATA	3600
ATTCTTTGTC ATCTTGACCA AGAGTTATGT ATCTCATCAA ATTTTCTCC TTTAATTTCT	3660
AACATTCTTC CCTTCATTAT AACAAAAAC CGCTTTGCAA CGACTTTTG ACTATACTTC	3720
ACTCCATTTT ATCTTCTTAA ACCCACGGAA CAAGACAAAG ATTCCAATA AGAGGACAGC	3780
TAAAGGAATA ACTTTTGTA GGAACATT TGAAATTTCC ATCCACTCAT AATAACGGAG	3840
CAGAGAACCC ACCACAAGAT GGGCAATAAT CATACTGACA AATGGACGAA AGACCGCTTC	3900
TTTCCAATTC CAAATACCGA TAACTAGCGA AATCGTAAAG ACAGACAAAC TATCCCAGGG	3960
AGCCGGAATA TAAAAGGCTC CTTCTTGAT GAAGCTTGCC ATTCCTACAT ATCCTAAAAC	4020
AACTAGAAGA ACTATAGTCC CAACAACAAT GTAAGTGCCA ATTTTCATTT TAGGAGAATC	4080
TTGGACTAAA CTTCTTCGTA AAATTGTGGC CACAAGTCCA AATCCAATCA GAAAAATAAG	4140
AAGTTGCCCT AAAAATGTGA GCAAATTGAC TGTTAAGAGA GGACCTTTAG AAAATCACT	4200
TAGTAGTTGA TAATAACGTA ATACCGCCAG GACAAGAATT GCGTCAAAA GGGACTCTTT	4260
GATAGAAGTG CGAGGTGCTC CTTGAGAAT CTCTTTCATT ATTTTTTTAG GATTCTTACC	4320
TAGATAATCC TCTGCACTCA TGCCATCTCG TTCTGCTTCT GAGAAATCTA GCATCATCAA	4380

724

ATAGATCTGC	TCTCTGAGAT	AGTCTTCATC	ATAGAGAAAT	CCAGCAAGAT	TAAAACTTTC	4440
CCACAACTCC	TCAAAATACT	TTTGATTCTC	CTCAGAAAAC	TCATGTAGCA	AAGCGCTTGT	4500
TTCTTCGTAA	TACTTCATTT	TCTTCATGGT	TTAACCCCCA	TTCTTAATCC	CTTCTACTTT	4560
TTGACTCAAA	TCGTCCCAT	GTTGCCAAAA	GA CTGAGACA	CGCTCTTCTC	CTTCTTTCAT	4620
TAATGAAAAA	TACTTCCGAT	CTGGACCATC	TGGCGACGGG	CGCATGTGCG	CTCTTATCCA	4680
TTGATTTTTT	TCTAACTTTT	GCAACAAAGG	ATAAATAGTT	CCTGGAACGA	TAGTATCAAA	4740
TCCAGCCTCT	CGCAAAGTCT	GAACCAACTC	ATAACCATAC	CGCTCTTTTT	GACCAATCAT	4800
ATCCAAGACA	CAACCTTCAA	GAACACCTTT	TAATAGCTGA	GTTTCTTTCA	TCACTTCTCC	4860
CTTCTAATCT	ATTTTGTAAT	ACCTACTAGT	GACTTCACCT	ATAGTATATC	ACTTCTACAC	4920
TAGTTTGTA	AGCATAATAG	TTAATACTCT	TCGAAAATCT	CTTCAAACCA	CGTCAGCGTC	4980
GCCCTACCGT	ATGTATGGTT	ACTGACTTCG	TCAGTTTCAT	CTACAACCTC	AAAAACATGT	5040
TTTGAGCTGA	CTTCGTCACT	TTCATCTACA	ACCTCAAAC	AGTGTTTGA	GCTGACTTCG	5100
TCAGTTTCAT	CTACAACCTC	AAAACAGTGT	TTTGAGCTGA	CTTCGTCACT	TTCATCTACA	5160
ACCTCAAAAA	CATGTTTTGA	GCTGACTTCG	TCAGTTTCGT	CTACAACCTC	AAAACAGTGT	5220
TTTGAGCAAC	CTGCGGCTAG	CTTCCTAGTT	TGCTCTTTGA	TTTTCATTGA	GTATAAATAA	5280
AAAAACAGAA	CTAGCCTGAA	CTAGTCCTGT	CTACTTTTAC	CCAATCACAC	TTCCATTGGG	5340
TACAGCTGGA	TCAACTGTGA	GAAGGGTTAA	TTTGCCATCA	TGTTCACTG	AGAGAATCAT	5400
ACCCTGGCTG	ACATATTTTT	TCATCATTTT	ACGTGGTTTG	AGGTTAGCAA	CGATTTGAAC	5460
TTTCTTGCCG	ACCAATTCTT	GTTCAATTGG	ATAGTATTTT	GCAATTCTCTG	AAAGAATCTG	5520
ACGATCTTCT	CCATCACCAG	CATCCAAGCG	GAATTGAAGC	AACTTATCTG	AACCTTCTAC	5580
TTTAGACACT	TCTTTGACTT	CTGCGACACG	GATTTCAACC	TTGTCAAAGT	CTTCAAACCTT	5640
GATTTTCATCC	TTGTTTAGTT	TGAGCTCAAC	TTCGTCCGGA	TTCCATTCTT	TTTCGACTGC	5700
TGGTTTATTG	CCTTCCATTT	GTTCTTGAT	ATAGGCGATT	TCTTCTTCCA	TATTTAGACG	5760
TGGAAAGATA	GGTGTTCCTT	TGGCAACTAC	AGTCACATCT	GCTGGGAAGT	CAGCCAAACT	5820
CAAGTTTTC	AGACTAGAAA	CTTCTTCCAA	ACCAAGTTGA	GTCAAAACTG	CACGACTAGT	5880
TTCCATCATA	AATGGTTCAA	TCAAGTGAGC	AACTACACGA	ATGCTGGCTG	CCAAGTGGCT	5940
CATGACACTT	GCCAATTGGT	CACGAAGAGC	TTCATCCTTG	GCCAAGACCC	ATGGTGCGGT	6000
CTCATCGATG	TATTTATTGG	TACGAGAGAT	CAGAGTCCAG	ACTGCTTCAA	GCGCACGTGG	6060
ATAGTCAACT	GCTTCCATGT	GTGTATGGAA	GTCTGCGATT	GATTGTWCTG	CAACCTCAGC	6120
AAGAACATGA	TCATATTCAG	TCACACCTTC	TACATAGGCA	GGGATTTGTC	CATCAAAGTA	6180

725

CTTATTAATC ATGGAACCG TACGGTTAAG GAGGTTCCCA AGGTCATTAG CCAATTCATA	6240
GTTGATACGG CCGACATAGT CTTCAAGGAGT AAAGGTTCCG TCTGAACCAA CTGGAAGGTT	6300
ACGCATGAGG TAGTAACGAA GTGGATCTAG TCCATAACGC TCTACCAACA TTTCAGGGTA	6360
AACGACATTC CCTTTTGACT TAGACATTTT TCCGTCTTTC ATGACAAACC AACCATGGGC	6420
AATCAAACGA TCAGGTAATT TAACATCCAA CATCATAAGA AGGATTGGCC AGTAGATAGA	6480
GTGGAAGCGA AGGATATCTT TTCCTACCAT ATGGAAGACT GTTCCATTCC AGAACTTGTC	6540
AAAGTTACCA TGTTCTGCTT GAGCGTAGCC AAGAGCTGTC GCATAGTTAA GAAGGGCATC	6600
AATCCAAACG TAGACAACGT GTTTTGGATT TGATGGGACA GGCACCTCCC ATGTAAAGGT	6660
TGTACGAGAT ACCGCCAAAT CTTCCAAGCC TGGCTCGATG AAGTTGCGTA GCATTTTCATT	6720
AAGGCGACCA TCTGGCGTGA TAAATTCAGG ATGAGCTTTG AAAAATTCGA CCAAACGGTC	6780
TTGGTATTTG CTAAGGCGAA GGAAGTATGA TTCTTCAGAA ACCCATTCAA CCTCATGACC	6840
TGATGGAGCA ATACCACCAG TCACATTTCC AGCTTCATCA CGGAAAACCT CTGCCAGCTG	6900
GCTTTCTGTA AAGAATTCCT CGTCTGATAC TGAATACCAA CCAGAGTATT CACCCAAGTA	6960
GATATCATCT TGAGCAAGTA AGCGTTCAAA GACTTGTGCG ACAACTTTTT CATGGTAGTC	7020
ATCAGTTGTA CGGATAAATT TATCGTATGA GATATCTAGT AATGCCAGA GTTCTTTAAC	7080
TCCAACCGCC ATTCCATCAA CATAGGCTTG AGGTGTAATA CCAGCTTCTT CCGCTTTCTG	7140
CTGGATTTTC TGACCATGTT CATCAAGACC TGTGAGATAA AATACATCGT AGCCCATCAG	7200
GGCTTTGTAA CGTGCTAGGA CATCACATGC GATAGTTGTG TAGGCAGAAC CGATATGAAG	7260
TTTCCCAGAT GGATAGTAAA TCGGCGTTGT AATATAAAAA TTTTTTTCAG ACATAATTTT	7320
TCCTTTCCAG GCAAATGAAA CCTGTTTTTC TAACACTTCA TTATATCACA TTTTAAATGA	7380
ATTTCAATAG GGAAATCCAT AAAAAACAA GATAGACGAG TGTCCATCTT GTTGATCTCA	7440
TTCATAACGA AGGGCTTCAA TTGGATCAAG TTTTCATGCC TTGTTGGCTG GCAAGACTCC	7500
AAAAATCATA CCAACACTAG CCGAAACTGC AAGACTAAAT AGGGCGACTG GGATTGATAC	7560
TCCAACCTCT ATACCTTCTA TTAACCTTG CAGTAACAAA CCTGCTAAGG CAGTTAAACC	7620
ACTTGCAATT GTCAAGCCAA TTAAGCCACC TAACAAGGTC AAAATCATGG ATTCAATCAA	7680
AAACTGAATT AAAATATTGG CACGTGTTGC ACCCAAAGCC TTACGAAGAC CAATCTCACC	7740
AGTGCGCTCT GTCACCGAAA CCAGCATGAT GTTCATGACA CCAGTTCCTC CAACAAAGAG	7800
AGAAATCCCT GCGATGGAAC TAATAATCGT CGTCATAAAA CTAAACGATT GTTGAATTTT	7860
TGCAAATACA ACGGACTCAT CTGCCACCTG GTATTCTCCC TGTGTGAAGC CTGCAAGCTC	7920

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TGTCATTTTT	CGTGCCAGTT	CTGGACCCAG	AGTTGGGGTT	AAACTGGTAT	CATTCACTCG	7980
AAAGACAATA	TTAGCTATTT	CATCTACATT	AAAATTCGCA	GCAAGGGAGA	TATTGGTAGT	8040
AATAGGCAAG	CCACCAAACC	CATATATTTT	TGATCTTTTA	GCCTCCGGAC	TAGTATAAAC	8100
CCCAATGACC	CGGTAACATA	ATCCATTGAC	TTCTACAACC	TTGTAAATAG	CCTCTTGAGG	8160
AGATTCAAAT	AAACTAATGG	ACAATTCCTC	ATCTAGCAAA	ATGACACTTG	CAAACCTCTT	8220
GAAATCTTGC	TCTCTCAGAC	TACGACCTGC	AATAATTTCA	TTCTTAACAG	CGTCCATGTA	8280
AGTTCTGTTT	CCACCTGTCA	AATTAGCATT	CTCAACCTTT	TTATCTTGAT	AGGTCAAGAT	8340
GGCATTCGTT	GAATTGGTTA	CATAGTAACT	ATCCACTCCC	TTCAGTTTAG	CTGCCTCTTG	8400
GACCCAGGAT	TCTTGCGGTT	TTGGCGGTTT	AACAGGAACT	TCCTCTTCCT	TTCCAGAAAC	8460
CGTAAAGCT	GATTGTTTCT	GAGTAAAAGA	CCCGTCTTTA	CTTTTTTTAG	GAGAGAAAAA	8520
GACGCTAATA	TTTTTCTGAG	ATTTAGTCAT	ATCTTTATTG	ACTTGACGAG	ATAGGGAATC	8580
ACCCAAAGCC	ATAATCACAA	CAACTGATGA	AACACCGATA	ATAATCCCAA	TCATAGTAAG	8640
CAAAGAACGC	ATCTTGTGAG	CCATGATAGA	TGAAAAGGCA	AATTCAGAT	TCTGCATCTT	8700
AGTTTTCTCT	CTTTCCTAAC	TGAGCACTGT	CAGACGAAAT	GACCCCATCC	CGAATGACAA	8760
TCTGACGTTT	GGCATAGGCA	GCAATCTCAG	GCTCATGCGT	TACCATGATA	ATGGTTTTTC	8820
CTTCTTTATT	CAAATCAACC	AATAATTGCA	TAATTTGGTT	ACCTGTTTTG	GTATCCAAGG	8880
CTCCTGTCGG	TTCATCCGCT	AGGATAATAG	AAGGATTGTT	TACCAAGGCA	CGCGCAATGG	8940
CTACACGTTG	CTTTTGACCA	CCAGATAATT	CTGAAGGTAA	ATGGTGACTA	CGTTCTGTCA	9000
ATTCAACCTT	GTCTAAATAT	TCCTCAGCCA	ACTTGCGACG	TTTTGAAGAC	GAAACTCCTG	9060
CGTAAATCAA	GGGCAATTCT	ACATTTTGCA	GAGCATTGAG	CTTCGATAGA	AGAAAGAACT	9120
GCTGAAAGAC	AAAACCGATT	TGTTGGTTAC	GGACCTTAGC	TAGTTGTTTT	TCACCAAGCC	9180
CAGCCACTTC	TTGACCTTCA	AGATAATATT	CTCCACTGGT	TGGTGTATCC	AACATGCCAA	9240
TCGTATTCAT	CAGAGTGGAC	TTACCAGACC	CAGATGGTCC	CATGATGGCT	ACAAATTCAC	9300
CCTCATTAC	TTCTAGATTG	ATATTTTGA	GAACCTGCAG	TTCTTGGTCA	CCATTACGGT	9360
AACTTCTGAA	GATATTTTTT	AGACTAATTA	GTTGCTTCAT	CAGCCTTCAC	CTCTTTTCCT	9420
TCTTCCAAGG	AAGATGTTGG	ATTACTGATG	ACCTTAGCAC	CGTTCGTTAA	ACCAGAAGTG	9480
ATTTCTTGAT	TTCTGCGTC	AGCATTTCCT	AATGAAACCT	CAACTTTTTT	AGCCTTTTGT	9540
TGTTTCATCA	CAATCCAGAC	ATAATTTTAA	CTATCATCCA	TTACTAGACT	GCTAACAGGA	9600
ACAAGAATAG	CCTTAGTTTT	GCTTTTAAAC	TCAATGTTGA	CAGAAAAACC	TTGTTTCAAA	9660
TCACCAACCT	CGCCTGTCAC	ATCAATAGTA	TAAGGGTATT	TAGAACCTGT	ATTATTCCCG	9720

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GCTGCTGGAC TAGCTGCTTC ACCATTGTTT TTAGGATAGT CAGAAATATA GCTTAATTTT	9780
CCAGTCCATT TTTTATCAGG ATACACTTTA GAAGTAAAGC TTACTTCTTG ACCTACAGAA	9840
AGGTTGGCTA GATTGTACTC AGACAATTCT CCCTTGACTT GTAAATTTTC ATTGCTGACA	9900
ATATGAACCA TAACTTGACT CGCCCTGTT GGAGATTAG AACATTGCT ATTGACTTCG	9960
ACCACAGTTC CCTCTAGGGT ACTGAGAACA GTTGTGTCAT CCAATTGACT TTGAGCCTTG	10020
CTTAATTGCG CCGCAGCATC TGCACGCGCA TCACGGGCAT CACCCAATTG AGCGTCAATA	10080
GAAGCAACAG AATTTCAGC CACTGGAGTT GGGCTTTGCA CCGTTGCATC TTCTCCTCCT	10140
ACTGGCGCTG GTAACGTGTG AGCCGGAGCT GAAGCGGCTT CATTTCGTGC TTGATTGAGT	10200
TCATTGATAT GACGATCTGC CCTAGCTACT GCTCGACTAG CTGAATCATA GGCCCGCTGC	10260
GCTTCTGAAC TACTGTACTT GACTAAAGCC TGCCCTTCGC TGACCTTATC GCCCAGAGAA	10320
ACAAGGATTT CATCTAAATC ACCCTTACTA GCATCAAAAT AACATATTG TTCATTTTTT	10380
GCTGTTACTG TCCCTGACAA TAAACAGAG GAGGCCACGC TTCCTTCCTT GGCAACAACA	10440
AGATGAGTAG GCTCATCTTT TAGAGCAGTC TGAGAAGGTT GTCTAAAGAG TAAATCCCC	10500
CCAGCACCCA ATACAACTAC ACTCGCAGCA CCGATTGCTG CATACAGTTG CCACTTTTTA	10560
GCTTTACCAT TCTTTTCTT CATAATGAAA CTCCTTTTCT TTTTACAAT ACTTTGCTAT	10620
TATACCAAAT TTCCCTCCAG CAAACAATAC AGTTCAGGAT TAAACAATCG TTCGGAATTT	10680
TGCTTTTCGG	10690

## (2) INFORMATION FOR SEQ ID NO: 94:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8195 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 94:

GAGAAAGCGC CCACGTTTCC CCGAAGGGAG AAAGGCGGAC AGGTATCCGG TAAGCGGCCA	60
GGGTCGGAAC AGGAGAGCGC AACGAGGGAG CTTCCCAGGG GGAAACGCCT GGTATCTTTA	120
TAGTCCTGTC GGGTTTCGCC ACCTCTGACT TGAGCGTCGA TTTTGTGAT GCTCGTCAGG	180
GGGGCGGAGC CTATGAAAAA ACGCCAGCAA CGCGGCCTTT TTACGGTTCC TGGCCTTTTG	240
CTGGCCTTTT GCTCACATGT TCTTCTGTC GTTATCCCCT GATTCTGTGG ATAACCGTAT	300
TACCGCCTTT GAGTGAGCTG ATACCGCTCG CCGCAGCGCA ACGACCGAGC GCAGCGAGTC	360

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AGTGAGCGAG GAAGCGGAAG AGCGCCCAAT ACGCAAACCG CCTCTCCCCG CGCGTTGGCC	420
GATTCATTAA TGCAGCTGGC ACGACAGGTT TCCCGACTGG AAAGCGGGCA GTGAGCGCAA	480
CGCAATTAAT GTGAGTTAGC TCACTCATTA GGCACCCAG GCTTTACACT TTATGCTTCC	540
GGCTCGTATG TTGTGTGGAA TTGTGAGCGG ATAACAATTT CACACAGGAA ACAGCTATGA	600
CaTGATTACG AATTCGAGCT CGGTACCCGG AAAATCCAGA AAATGCTTGA AAAAAATCCT	660
AGAAGATGGT ATAATACTAA ATTGTAAGGG TTATCACATA TAACTCAAAA AAAGAAAGAA	720
CAAAAGGAGA GTCAAACTAT GGCTTCTAAA GATTTCACG TAGTGGCAGA AACAGGTATT	780
CACGCACGTC CAGCAACATT GTTGGTACAA ACTGCTAGCA AATTTGCTTC AGATATCACT	840
CTTGAGTACA AAGGTAAATC AGTTAACCTT AAATCAATTA TGGGTGTTAT GAGTCTTGGT	900
GTTGGCCAAG GTGTGACGT AACTATCTCA GCTGAAGGTG CAGATGCAGA TGACGCTATC	960
GCTGCAATCT CAGAAACAAT GAAAAAGAA GGATTGGCAT AAGGGAAATG ACAGAAATGC	1020
TTAAAGGAAT CGCAGCATCT GACGGTGTG CAGTTGCAAA AGCATATCTA CTCGTTCCAGC	1080
CGGATTTGTC ATTTGAGACT ATTACAGTCG AAGATACAAA CGCAGAAGAA GCTCGCCTTG	1140
ATGCCGCTCT ACAGGCATCA CAAGACGAGC TTTCTGTTAT TCGCGAGAAA GCAGTAGGTA	1200
CGCTCGGTGA AGAAGCAGCT CAAGTTTTTG ATGCTCACTT AATGGTTCTT GCTGACCCAG	1260
AAATGATCAG CCAAATCAAG GAACTATCC GTGCGAAGAA AGTGAATGCA GAAGCAGGTC	1320
TGAAAGAAGT TACAGATATG TTTATCACTA TCTTTGAAGG CATGGAAGAC AATCCATACA	1380
TGCAAGAACG CGCAGCGGAT WTCCGCGACG TGACAAAACG TGTATTGGCA AACCTTCTTG	1440
GTA AAAAATT GCCAAACCA GCTTCTATCA ATGAAGAAGT GATTGTGATT GCGCATGACT	1500
TGACTCCTTC AGATACAGCT CAATTGGACA AAAACTTTGT AAAAGCTTTT GTAACCAACA	1560
TTGGTGGACG TACAAGCCAC TCAGCTATCA TGGCAGTAC ACTTGAAATT GCTGCTGTAT	1620
TAGGTACAAA TAACATCACT GAAATCGTTA AAGACGGTGA CATCCTTGCT GTTAACGGGA	1680
TCACTGGAGA AGTGATTATC AATCCACAG ATGAACAAGC GGCAGAATTT AAAGCAGCTG	1740
GTGAAGCCTA TCGGAAACAA AAAGCTGAAT GGGCACTTTT GAAAGATGCT CAAACAGTGA	1800
CTGCTGACGG TAAACACTTC GAGTTGGCTG CTAATATCGG TACTCCAAAA GACGTTGAAG	1860
GTGTTAACAA CAACGGTGCA GAAGCTGTTG GACTTTACCG TACAGAGTTC TTGTACATGG	1920
ATTCTCAAGA CTTCCCAACT GAAGATGAGC AGTATGAAGC ATACAAGGCT GTTCTTGAAG	1980
GAATGAACGG TAAACCTGTT GTCGTTCTGA CAATGGATAT CGGTGGAGAT AAGGAACTTC	2040
CTTACTTCGA TATGCCTCAC GAAATGAACC CATTCCTTGG ATTCCGTGCT CTTCGTATCT	2100
CTATCTCTGA GACTGGAGAT GCTATGTTCC GCACACAAAT CCGTGCTCTT CTTGCTGCGT	2160



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CTGTTACGCG	TCAATTGCGT	ATCATGTTCC	CAATGGTTGC	GCTCTTGAAA	GAATTCGCTG	2220
CAGCGAAAGC	AGTCTTTGAT	GAAGAAAAAG	CAAACCTTCT	TGCTGAAGGT	GTTCAGTTG	2280
CGGATAACAT	CCAAGTTGGT	ATCATGATCG	AGATTCCTGC	AGCGGCTATG	CTTCAGACC	2340
AATTTGCTAA	AGAAGTTGAC	TCTTCTCAA	TTGGTACAAA	CGACTTGATC	CAATATACAA	2400
TGGCAGCAGA	CCGTATGAAC	GAACAAGTTT	CATACCTTTA	CCAACCATAC	AACCCATCAA	2460
TCCTACGCTT	GATTAACAAT	GTGATCAAAG	CAGCTCACGC	TGAAGGTAAA	TGGGCTGGTA	2520
TGTGTGGTGA	GATGGCTGGT	GACCAACAAG	CTGTTCCACT	TCTTGTCGGA	ATGGGCTTGG	2580
ATGAGTTCTC	TATGTCAGCA	ACATCTGTAC	TTCGTACACG	CAGCTTGATG	AAGAACTCG	2640
ACACAGCTAA	GATGGAAGAG	TACGCAAACC	GTGCCCTTAC	AGAATGCTCA	ACAATGGAAG	2700
AAGTTCTTGA	ACTTCAAAAA	GAATACGTTA	ATTTTGATTA	ATCGAAAAGT	CCCTGCAACT	2760
CAGTTACAGG	GATTTTTTTG	ATATTTTAAA	AAGAATTTTC	AAGAAAATCT	TTCTTATAGA	2820
AAGTCCAACC	TTGAAAAAGT	AGTGGTCAGA	ACAAAAATA	CTTAAATGGT	TCATAAAATT	2880
CTTGACAAGT	TGGATATTTA	GGAGTAAACT	ATTAACCAGT	TAAGTAATAG	AGAGGAGTTT	2940
CTGCAATTTA	GAAATGAATT	GCAACTAGAA	ATATCAAATA	GAAAGAGAGT	TTCGATGAAA	3000
ATTAATAAGA	AATACCTTGT	TGTTTCTGCG	GCACCTTGAT	TTTAAGTGTT	TGTTCTTACG	3060
AGTTGGGACT	GTATCAAGCT	AGAACGGTTA	AGGAAAATAA	TCGTGTTTCC	TATATAGATG	3120
GAAAACAAGC	GACGCAAAAA	ACGGAGAATT	TGACTCCTGA	TGAGGTTAGC	AAGCGTGAAG	3180
GAATCAATGC	TGAGCAAATC	GTCATCAAGA	TAACAGACCA	AGGCTATGTC	ACTTCACATG	3240
GCGACCACTA	TCATTATTAC	AATGGTAAGG	TTCCTTATGA	CGCTATCATC	AGTGAAGAAT	3300
TACTCATGAA	AGATCCAAAC	TATAAGCTAA	AAGATGAGGA	TATTGTTAAT	GAGGTCAAGG	3360
GTGGATATGT	TATCAAGGTA	GATGGAAAAT	ACTATGTTTA	CCTTAAGGAT	GCTGCCCACG	3420
CGGATAACGT	CCGTACAAAA	GAGGAAATCA	ATCGACAAAA	ACAAGAGCAT	AGTCAACATC	3480
GTGAAGGTGG	AACTCCAAGA	AACGATGGTG	CTGTTGCCTT	GGCACGTTCTG	CAAGGACGCT	3540
ATACTACAGA	TGATGGTTAT	ATCTTTAATG	CTTCTGATAT	CATAGAGGAT	ACTGGTGATG	3600
CTTATATCGT	TCCTCATGGA	GATCATTACC	ATTACATTCC	TAAGAATGAG	TTATCAGCTA	3660
GCGAGTTGGC	TGCTGCAGAA	GCCTTCCTAT	CTGGTCGAGG	AAATCTGTCA	AATTCAAGAA	3720
CCTATCGCCG	ACAAAATAGC	GATAACACTT	CAAGAACAAA	CTGGGTACCT	TCTGTAAGCA	3780
ATCCAGGAAC	TACAAATACT	AACACAAGCA	ACAACAGCAA	CACTAACAGT	CAAGCAAGTC	3840
AAAGTAATGA	CATTGATAGT	CTCTTGAAAC	AGCTCTACAA	ACTGCCTTTG	AGTCAACGAC	3900

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ATGTAGAATC TGATGGCCTT GTCTTTGATC CAGCACAAAT CACAAGTCGA ACAGCTAGAG	3960
GTGTTGCAGT GCCACACGGA GATCATTACC ACTTCATCCC TTACTCTCAA ATGCTCTGAAT	4020
TGGAAGAACG AATCGCTCGT ATTATTCCCC TTCGTTATCG TTCAAACCAT TGGGTACCAG	4080
ATTCAAGGCC AGAACAAACCA AGTCCACAAC CGACTCCGGA ACCTAGTCCA GGCCCGCAAC	4140
CTGCACCAAA TCTTAAAATA GACTCAAATT CTCTTTGGT TAGTCAGCTG GTACGAAAAG	4200
TTGGGGAAGG ATATGTATTC GAAGAAAAGG GCATCTCTCG TTATGTCTTT GCGAAAGATT	4260
TACCATCTGA AACTGTTAAA AATCTTGAAA GCAAGTTATC AAAACAAGAG AGTGTTCAC	4320
ACACTTTAAC TGCTAAAAAA GAAAATGTTG CTCCTCGTGA CCAAGAATTT TATGATAAAG	4380
CATATAATCT GTTAACTGAG GCTCATAAAG CCTTGTTTGA AAATAAGGGT CGTAATTCTG	4440
ATTTCCAAGC CTTAGACAAA TTATTAGAAC GCTTGAATGA TGAATCGACT AATAAAGAAA	4500
AATTGGTAGA TGATTTATTG GCATTCTAG CACCAATTAC CCATCCAGAG CGACTTGGCA	4560
AACCAAATTC TCAAATTGAG TATACTGAAG ACGAAGTTCG TATTGCTCAA TTAGCTGATA	4620
AGTATACAAC GTCAGATGGT TACATTTTGG ATGAACATGA TATAATCAGT GATGAAGGAG	4680
ATGCATATGT AACGCCTCAT ATGGGCCATA GTCACTGGAT TGGAAAAGAT AGCCTTTCTG	4740
ATAAGGAAAA AGTTGCAGCT CAAGCCTATA CTAAAGAAAA AGGTATCCTA CCTCCATCTC	4800
CAGACGCAGA TGTTAAAGCA AATCCAACTG GAGATAGTGC AGCAGCTATT TACAATCGTG	4860
TGAAAGGGGA AAAACGAATT CCACTCGTTC GACTTCCATA TATGGTTGAG CATAAGTTG	4920
AGGTTAAAAA CGGTAATTTG ATTATTCCTC ATAAGGATCA TTACCATAAT ATTAAATTTG	4980
CTTGTTTGA TGATCACACA TACAAAGCTC CAAATGGCTA TACCTTGAA GATTGTGTTG	5040
CGACGATTAA GTACTACGTA GAACACCCTG ACGAACGTCC ACATTCTAAT GATGGATGGG	5100
GCAATGCCAG TGAGCATGTG TTAGGCAAGA AAGACCACAG TGAAGATCCA AATAAGAACT	5160
TCAAAGCGGA TGAAGAGCCA GTAGAGGAAA CACCTGCTGA GCCAGAAGTC CCTCAAGTAG	5220
AGACTGAAAA AGTAGAAGCC CAACTCAAAG AAGCAGAAGT TTTGCTTGCG AAAGTAACGG	5280
ATTCTAGTCT GAAAGCCAAT GCAACAGAAA CTCTAGCTGG TTTACGAAAT AATTTGACTC	5340
TTCAAATTAT GGATAACAAT AGTATCATGG CAGAAGCAGA AAAATTACTT GCGTTGTAA	5400
AAGGAAGTAA TCCTTCATCT GTAAGTAAGG AAAAAATAAA CTAATGAAAA ATGAAAGTCT	5460
CGATAAAGAG GCTTTCATTT TTATTATGTA TATATGTAAA ATTCTTGACA AGCAATATTA	5520
AAAAGAGTAA ACTATTAAGT AGTTAATTAA CCGGTTTATT ACTTTATAGT GAATCAAATA	5580
TACTTAAGAA AAGAGGAAAG AATGAAAATT AATAAAAAAT ATCTAGCAGG TTCAGTGGCA	5640
GTCTTGCCC TAAGTGTGTTG TTCCTATGAA CTGGTCGTC ACCAAGCTGG TCAGGTAAAG	5700

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AAAGAGTCTA ATCGAGTTkC TTATATAGAT GGTGATCAGG CTGGTCAAAA GGCAGAAAAC	5760
TTGACACCAG ATGAAGTCAG TAAGAGGGAG GGGATCAACG CCGAACAAAT CGTCATCAAG	5820
ATTACGGATC AAGGTTATGT GACCTCTCAT GGAGACCATT ATCATTACTA TAATGGCAAG	5880
GTCCTTATG ATGCCATCAT CAGTGAAGAG CTCCTCATGA AAGATCCGAA TTATCAGTTG	5940
AAGGATTCAG ACATTGTCAA TGAAATCAAG GGTGGTTATG TTATCAAGGT AGATGGAAAA	6000
TACTATGTTT ACCTTAAGGA TGCAGCTCAT GCGGATAATA TTCGGACAAA AGAAGAGATT	6060
AAACGTCAGA AGCAGGAACA CAGTCATAAT CACGGGGGTG GTTCTAACGA TCAAGCAGTA	6120
GTTGCAGCCA GAGCCCAAGG ACGCTATACA ACGGATGATG GTTATATCTT CAATGCATCT	6180
GATATCATTG AGGACACGGG TGATGCTTAT ATCGTTCCTC ACGGCGACCA TTACCATTAC	6240
ATTCCTAAGA ATGAGTTATC AGCTAGCGAG TTAGCTGCTG CAGAAGCCTA TTGGAATGGG	6300
AAGCAGGGAT CTCGTCCTTC TTCAAGTTCT AGTTATAATG CAAATCCAGC TCAACCAAGA	6360
TTGTCAGAGA ACCACAATCT GACTGTCACT CCAACTTATC ATCAAAATCA AGGGGAAAAC	6420
ATTTCAAGCC TTTTACGTGA ATTGTATGCT AAACCCCTTAT CAGAACGCCA TGTGGAATCT	6480
GATGGCCTTA TTTTCGACCC AGCGCAAATC ACAAGTCGAA CCGCCAGAGG TGTAGCTGTC	6540
CCTCATGGTA ACCATTACCA CTTTATCCCT TATGAACAAA TGTCTGAATT GGAAAAACGA	6600
ATTGCTCGTA TTATTCCCCT TCGTTATCGT TCAAACCATT GGGTACCAGA TTCAAGACCA	6660
GAACAACCAA GTCCACAATC GACTCCGGAA CCTAGTCCAA GTCCGCAACC TGCACCAAT	6720
CCTCAACCAG CTCCAAGCAA TCCAATTGAT GAGAAATTGG TCAAAGAACC TGTTGAAAA	6780
GTAGGCGATG GTTATGCTT TGAGGAGAAT GGAGTTTCTC GTTATATCCC AGCCAAGGAT	6840
CTTTCAGCAG AAACAGCAGC AGGCATTGAT AGCAAACCTGG CCAAGCAGGA AAGTTTATCT	6900
CATAAGCTAG GAGCTAAGAA AACTGACCTC CCATCTAGTG ATCGAGAATT TTACAATAAG	6960
GCTTATGACT TACTAGCAAG AATTCACCAA GATTTACTTG ATAATAAAGG TCGACAAGTT	7020
GATTTTGAGG CTTTGATAA CCTGTTGGAA CGACTCAAGG ATGTCyCAAG TGATAAAGTC	7080
AAGTTAGTGG ATGATATTCT TGCCTTCTTA GCTCCGATTC GTCATCCAGA ACGTTTAGGA	7140
AAACCAAATG CGCAAATTAC CTACACTGAT GATGAGATTC AAGTAGCCAA GTTGGCAGGC	7200
AAGTACACAA CAGAAGACGG TTATATCTTT GATCCTCGTG ATATAACCAG TGATGAGGGG	7260
GATGCCTATG TAACTCCACA TATGACCCAT AGCCACTGGA TTAATAAAGA TAGTTTGTCT	7320
GAAGCTGAGA GAGCGGCAGC CCAGGCTTAT GCTAAAGAGA AAGGTTTGAC CCCTCCTTCG	7380
ACAGACCATC AGGATTCAGG AAATACTGAG GCAAAGGAG CAGAAGCTAT CTACAACCCG	7440

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GTGAAAGCAG CTAAGAAGGT GCCACTTGAT CGTATGCCTT ACAATCTTCA ATATACTGTA	7500
GAAGTCAAAA ACGGTAGTTT AATCATACCT CATTATGACC ATTACCATAA CATCAAATTT	7560
GAGTGGTTTG ACGAAGGCCT TTATGAGGCA CCTAAGGGGT ATACTCTTGA GGATCTTTTG	7620
GCGACTGTCA AGTACTATGT CGAACATCCA AACGAACGTC CGCATTGAGA TAATGGTTTT	7680
GGTAACGCTA GCGACCATGT TCGTAAAAAT AAGGTAGACC AAGACAGTAA ACCTGATGAA	7740
GATAAGGAAC ATGATGAAGT AAGTGAGCCA ACTCACCCTG AATCTGATGA AAAAGAGAAT	7800
CACGCTGGTT TAAATCCTTC AGCAGATAAT CTTTATAAAC CAAGCACTGA TACGGAAGAG	7860
ACAGAGGAAG AAGCTGAAGA TACCACAGAT GAGGCTGAAA TTCCTCAAGT AGAGAATTCT	7920
GTTATTAACG CTAAGATAGC AGATGCGGAG GCCTTGCTAG AAAAAGTAAC AGATCCTAGT	7980
ATTAGACAAA ATGCTATGGA GACATTGACT GGTCTAAAAA GTAGTCTTCT TCTCGGAACG	8040
AAAGATAATA ACACTATTTC AGCAGAAGTA GATAGTCTCT TGGCTTTGTT AAAAGAAAGT	8100
CAACCGGCTC CTATACAGTA GTAAATGAA TGGAGCATAT TTTATGGAGA AGTAACCTTT	8160
CGTGTTACTT CTCTTTTTTA GAAAAACGTA ACAGA	8195

(2) INFORMATION FOR SEQ ID NO: 95:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2004 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 95:

TTTACTAAAA GGAAAAAGA ACTGATTCTT CAGTCCTTCA TTAATCTTAT TCCACACTAA	60
ATAGGTATGG GTAAACAGGT TGTTGACCTT GGTGAATCTC GACTTCAACG TCTTCGAATT	120
CTTCTACGAT TTCTTGAGCG ATTTCAATTG CAAGTTCTTC GCTTCCGTCT TCACCTACAT	180
AGAAGGTAC GATTTCACTG TCTTCATCCA ACATATGTTT CAAGGTTTCA GTCAATGTTT	240
GGTGCATATC AGGGTTTGAC ACAAGAATTT TTCCATCCAC CATACCTAAA TTATCGTTTT	300
CATGGATTTC TAAGCCATCG ATCGTTGTAT CACGCACGGC TGTGTGACG CTTCCGCTAA	360
CGACATCGCT AAGAGCAGCT GTCATACGCT CTTGGTTTTC TTCAATGGAC TTGCTTGGAT	420
CAAAGGCAAG AAGACTTGTC ATACCTTGAG GAAGAGTGCG AGCCTCTACC ACTACCGCTG	480
GTTGCTCCAA AACTTCTGCC GCAGATTGAG CTGCCATGAA GATGTTCTTG TTGTTTGGCA	540
AGAAGATGAT GTTACGGGCA TTAACCTGTT CAACAGCCTT GATAAAGTCT TCTGTTGAAG	600
GGTTCATGGT TTGACCGCCT TCGATAACAT AATCCACGCC TTGAGAACAG AAGATATCTG	660

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CTAGACCTTT ACCAGCCACC ACAGCAATCA AAGCATACTC TTTTCTTCA GCCGACTTGA	720
TAACCTTGAGT AGCTTCTTTC TCAACCTGTG CTTCTGTGTG GTTACGCATA TTGTCAACTT	780
TTACCTTGAC CAAGCTACCA TATTTGAGAC CTTCTTGCAT AACCAAGTCCT GGATCTTCTG	840
TATGAACATG GACTTTGACA ATTTTCATCAT CGTTAACAAC AAGGAGAGAA TCTCCAAGCT	900
CATCCAAGTA GTTACGGAAT TCATCGTAGT CAAAATCTTT AGCATAGGTT GGACCTTGCT	960
TAAGAGCTAC CATGATTTC A GTACAGTAAC CAAACGTGAT GTCCTCAGTC GCTACGTGAC	1020
CAGCTACAGA CTTATGATGC TCTACATTGA TCATCTCACT CATGTTGGCA GGAGTCGCTA	1080
CAAAGTCCTC AGATGCAATA TATTCGCCAG TAAGGGCTGA AAGGAAACCT TCGTAGATGA	1140
AGACCAATCC TTGACCACCT GAGTCCACAA CGCCAACTTC TTTCAATACT GGAAGCATGT	1200
CTGGTGTTTT AGCTAGAGCT GTTTTAGCAC CTTCCAAGGC TGGCGCATG ACTTCAACAG	1260
CGTCATCTGT TTGCTCAGCT TTTTCTTAG CACCGATAGC AGCTCCACGA GAAACTGTTA	1320
AAATCGTTCC TTCAACAGGT TTCATCACTG CCTTATAGGC AACTTCCACA CCTGATTGGA	1380
AGGCCAGAGC CAAGTCTTGA CCTGTAACT CGTCTTTATC CTTGATAGCT TGGGAAAATC	1440
CACGGAAAAG CTGAGACGTA ATCACTCCTG AGTTCCCACG CGCACCCATC AAAAGCCCTT	1500
TGGCAAGAAT GCTCGCTACT TCTCCAAGT TAGAAGCTGG CTTGTCTGCA ACTTCTTTAG	1560
CACCATTTTC AATGGTCATT CCCATATTTG TCCCAGTATC TCCATCTGGA ACTGGAAGA	1620
CGTTTAATGA ATTGACATAT TCAGCTTGCT TATTCAAGCG AGTTGATGCA GCCTGCACCA	1680
TTTCTTGAAA TAAGCTAGTA GTAATTTTG ACACGGTTAT TCTCCTACAA CTTTGATATT	1740
TTGAATGTAG ACATTTACAG TCTGAGCAGT AATCCAAGC TGGTTTTCCA AGCTAAAGGC	1800
AACACGCTCT TGAATGTTTT TTGACACTTC ACTAATCTTT GTTCCGTAGC TTAACACGGT	1860
ATATACATCA ACTGCAATAC TGCCATCTTC GGCTGCCTTT ACGACGACAC CTTTAGAATA	1920
ATTTTCCTTA CCTAGCAGGG CTTGGAAATT ATCTTTGAGG GCATTTTAC TAGCCATACC	1980
GACCACACCA GAAATCTCAG TTGC	2004

(2) INFORMATION FOR SEQ ID NO: 96:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 11915 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 96:

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CCGGGTTGGG CTGTTGCCCC ATTAAAGCGG CACCACAGCT GGGTTCAGAA CGTCGTGAGA	60
CAGTTCGGTC CCTATCCGTC GCGGGCGTAG GAAATTTGAG AGGATCTGCT CCTAGTACGA	120
GAGGACCAGA GTGGACTTAC CGCTGGTGTA CCAGTTGTCT TGCCAAAGGC ATCGCTGGGT	180
AGCTATGTAG GGAAGGGATA AACGCTGAAA GCATCTAAGT GTGAAACCCA CCTCAAGATG	240
AGATTTCCCA TGATTATATA TCAGTAAGAG CCCTGAGAGA TGATCAGGTA GATAGGTTAG	300
AAGTGAAGT GTGGCGACAC ATGTAGCGGA CTAATACTAA TAGCTCGAGG ACTTATCCAA	360
AGTAACTGAG AATATGAAAG CGAACGGTTT TCTTAAATTG AATAGATATT CAATTTTGAG	420
TAGGTATTAC TCAGAGTTAA GTGACGATAG CCTAGGAGAT ACACCTGTAC CCATGCCGAA	480
CACAGAAGTT AAGCCCTAGA ACGCCGGAAG TAGTTGGGGG TTGCCCCCTG TGAGATAGGG	540
AAGTCGCTTA GCTCTAGGGA GTTTAGCTCA GCTGGGAGAG CATCTGCCTT ACAAGCAGAG	600
GGTCAGCGGT TCGATCCCGT TAACTCCCAT TTTAGCGGGT GTAGTTTACT GGTAAACTA	660
CAGCCTTCCA AGCTGTTGTC GCGAGTTCGA TTCTCGTCAC CCGCTTTGAA CTTTGTCTT	720
TGTACCAAGT TTTTGACTTG GGCGCGTAGC TCAGGTGGTT AGAGCGCACG CCTGATAAGC	780
GTGAGGTCCG TGGTTCGAGT CCACTCGTGC CCATAGTGT TAGTCCATTA CTAGGGGATT	840
GGAATATTAT CTGTTCACTA AGAGGACACG GGCTTGTTC CGTATAAACT ATTTTGGAGG	900
ATTACCCAAG TCCGGCTGAA GGGAACGGTC TTGAAAACCG TCAGGCGTGT AAAAGCGTGC	960
GTGGGTTCGA ATCCACATC CTCCTTTTAT ATTAACGCGG GATGGAGCAG CTCGGTAGCT	1020
CGTCGGGCTC ATAACCCGAA GGTCTGAGGT TCAAATCCTG CTCCCGCAAT AAGGCTCGGT	1080
AGTTCAGTTG GTAGAGCAAT GGAATGAAGC TCCATGTGTC GGCGGTTCTGA TTCCGCTCTCG	1140
CGCCATTTAT ATATTTTGA AGGGTAGCGA AGAGGCTAAA CGCGGCGGAC TGTAAATCCG	1200
CTCCTTCGGG TTCGGGGGTT CGAATCCCTC CCCTTCCATT TTACGGGCAT AGTTTAAAGG	1260
TAGAACTAAG GTCTCCAAAA CCTTCAGTGT GGGTTCAATT CCTACTGCCC GTGTTAATAG	1320
AATTATGGCG GGTGTGGTGA AGTGGTTAAC ACACCAGATT GTGGCTCTGG CATGCGTGGG	1380
TTCGATCCCC ATCACTCGCC TATTTTATAT TGGGGTATAG CCAAGCGGTA AGGCAAGGGA	1440
CTTTGACTCC CTCATGCGTT GGTTCGAATC CAGCTACCCC AGTTACTATT TGCCGGCGTG	1500
GCGGAATTGG CAGACGCGCT GGACTCAAAA TCCAGTGTCC GCAAGGACGT GCCGGTTCGA	1560
CCCCGGCCGC CCGTATAGTA TAGTGTTAGG AACGTTGTTA TTCTTCGTTT CTTTTTTATA	1620
TTATTTTGG TATAATTATA GTTATTCAAA TTTTATTAG ATTAAGAAAG TGTAGGGGAG	1680
TATGTCTTGT TCTATCGATT TATTAACA TCGGTATTG AAAAATATTA AAGAAAATCC	1740
TGAATTGTTT GTCGGAATTG AGTTGGAGTA TCCTGTTGCA AGTTTAGAAG GGGATGCTAC	1800

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AGATGTTGAA GTTATGAAGG ATCTATTTCA TTATTTAGTT TCTACTTTGG ATCTCACCGT	1860
AGCAAAGGTA GATGATTTTG GCAATCTGAT CCAGTTAGTA GATCCGATAA GTCAGGATGC	1920
TATTTTATTT GAAGTTTCCT ATACAACGAT TGAGTTTGCA TTTGGTAAGG CTGAAACGAT	1980
TCAAGAGGTC GAAAATCGTT TCAATAATTA TATGAATGTA ATTCAGAGAA AGTTAGCTGA	2040
ATCAAATCAT GCTATTGTTG GCTGTGGTAT CCATCCCAAC TGGGATAAAA ATGAGAATTG	2100
TCCAGTGGCT TATCCACGCT ATCAGATGTT GATGGATTAT TTGAATTTGA GTAGAAATAT	2160
TATTAATCA GATTTACATC ATTTCCCTGA ATATGGTACT TTTATCTGTG GGAGCCAGGT	2220
TCAGCTGGAT ATTTCAAAAA CCAACTACTT ACGGGTGATT AATGCTTTTA CTCAAATTGA	2280
AGCGGCTAAG GCTTATTTAT TTGCAAACTC TGAATTTTCG GGTGCGGATT GGGATACGAA	2340
AATTTCAAGG GATATTTTCT GGAAGAATC TATGCATGGT ATCTATCCAG AGAATGTTGG	2400
GGTCAATGCT AGACTCCTTA ATGATGAAAC TGATTTTTTT GACTATCTAA ATCATTCTGC	2460
GATTTTTACT GCGGAACGTG ATGGGCAGAC CTATTATTTT TATCCTATTC AGGCTGGGGA	2520
CTATTTGGCT ACGTCCGAAA TCCAAGCATT TGCTCTGAAT GGGGATGAGG TTATTATTTA	2580
CCCCAAGAG AAGGATTTTG AAATCATCG TAGTTACCAG TACCAAGATT TAACGACTCG	2640
AGGAACAGTT GAGTTTCGTA GTGTGTGTAC ACAGCCACTT GATAGGACTT TTGCTTCTGC	2700
AGCTTTTCAC TTGGGATTAT TGGTTAATTT AGACAAGTTA GAAGCTTACT TAGAAACAGC	2760
ACCTTTCTTT AAAGTATTTG GTTATGATTA CAAGTCTTTA AGGAGACAAT TTTCTAAGAA	2820
AAATCTTACA GATGAGGAAG AAATACGAT TATTGAATTT TCCAAAGACT TACTCCTACT	2880
AGCTGAGGAG GGAAGTAGTG TGAGAAATAA GGAAGAAATG ACCTATTTAC AGCCTTTGAG	2940
AGAAGAATTG AGCCTATAAT TTCTCTTATA AAGGGAGAAT TTTCTGAAAA ATCATGATAT	3000
AATGGACGAG ACTATAGATA AAGGATAGAG AGTAATGACA TTAGTTTATC AATCAACGCG	3060
TGATGCCAAC AATACAGTAA CTGCCAGCCA AGCAATTTTG CAAGGTTTGG CGACGGACGG	3120
CGGTTTGTTT ACACCGGATA CTTATCCAAA GGTAGATTTG AACTTTGACA AATTGAAAGA	3180
TGCTTCTTAC CAGGAAGTTG CTAAGCTAGT TTTGTCAGCA TTTTATAGAT ACTTTACAGT	3240
TGAGGAGTTG GACTACTGTA TCAACAATGC CTACGATAGC AAATTTGATA CTCCAGCTAT	3300
TGCACCATTA GTGAAATTAG ATGGGCAATA CAATTTGGAA CTTTTCATG GTTCAACGAT	3360
TGCCTTTAAG GATATGGCCT TGTCTATTTT GCCATACTTT ATGACGACTG CTGCTAAGAA	3420
ACATGGTTTG GAGAACAAGA TTGTTATCTT GACAGCGACA TCTGGTGACA CGGGGAAAGC	3480
TGCTATGGCG GGGTTTGCGA ATGTGCCTGG TACTGAGATT ATCGTCTTTT ATCCAAAGGA	3540

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TGGTGTGAGC	AAGATTCAAG	AGTTACAAAT	GACCACTCAG	ACTGGCGACA	ATACTCATGT	3600
TATTGCTATT	GATGGTAACT	TTGACGATGC	GCAAACAAAT	GTGAAGCACA	TGTTTAACGA	3660
CGTGGCTCTT	CGTGAAAAAT	TGACTACCAA	CAAGTTGCAA	TTTTCATCAG	CTAACTCTAT	3720
GAACATTGGT	CGTCTGGTGC	CACAAATTGT	TTATTATGTT	TATGCTTACG	CTCAATTGGT	3780
TAAGACTGGT	GAAATTGTAG	CTGGTGAAAA	GGTTAACTTC	ACAGTACCAA	CAGGAACTT	3840
TGGAAATATC	TTGGCTGCCT	TTTATGCCAA	ACAAATTGGT	TTGCCAGTTG	GTAAATTAAAT	3900
CTGTGCTTCA	AATGACAACA	ATGTTTGTAC	AGACTTCTTT	AAAACACGTG	TCTATGACAA	3960
AAAACGTGAG	TTTAAGGTAA	CAACCAGCCC	ATCTATGGAT	ATCTTGGTAT	CTTCAAACCTT	4020
GGAGCGCTTG	ATTTTCCATC	TTTTGGGAAA	TAATGCTGAA	AAGACAACTG	AACTTATGAA	4080
TGCCTTGAAC	ACGCAAGGAC	AATATAAGTT	GACAGACTTT	GATGCAGAGA	TTTTGGACCT	4140
CTTTCGAGCT	GAATATGCGA	CTGAGGAAGA	AACGGCAGCA	GAGATCAAGC	GTGTTTGTGA	4200
GTTAGATTCT	TATATCGAGG	ACCCTCATAC	AGCTGTTGCT	TCAGCAGTTT	ATAAAAAATA	4260
CCAATCGGCC	ACTGGAGATG	TAACTAAGAC	AGTGATTGCT	TCAACAGCTA	GTCCATACAA	4320
GTTCCAGTA	GTTGCAGTAG	AAGCTGTAAC	TGGAAAAGCA	GGTTTAACAG	ACTTTGAAGC	4380
CTTGGCTCAA	TTACATGAAA	TCTCAGGCGT	TGCAGTGCCA	CCAGCAGTTG	ATGGGCTTGA	4440
AATAGCTCCA	ATTCTGCACA	AGACAACAGT	GGCAGCTGCT	GACATGCAAG	CAGCGGTTGA	4500
GGCTTATTTA	GGACTTTAAG	ACAGAGGGAG	CAAACCTCGT	TGGGAAACCA	ACTGAGTTTC	4560
TTTTTCATCAG	GAGGAGAGAT	TGTTTAAGAA	AAATAAAGAC	ATTCTTAATA	TTGCATTGCC	4620
AGCTATGGGT	GAAAACTTT	TGCAGATGCT	AATGGGAATG	GTGGACAGTT	ATTTGGTTGC	4680
TCATTTAGGA	TTGATAGCTA	TTTCAGGGGT	TTCAGTAGCT	GGTAATATTA	TCACCATTTA	4740
TCAGGCGATT	TTCATCGCTC	TGGGAGCTGC	TATTTCCAGT	GTTATTTCAA	AAAGCATAGG	4800
GCAGAAAGAC	CAGTCGAAGT	TGGCCTATCA	TGTGACTGAG	GCGTTGAAGA	TTACCTTACT	4860
ATTAAGTTTC	CTTTTAGGAT	TTTTGTCCAT	CTTCGCTGGG	AAAGAGATGA	TAGGACTTTT	4920
GGGGACGGAG	AGGGATGTAG	CTGAGAGTGG	TGGACTGTAT	CTATCTTTGG	TAGGCGGATC	4980
GATTGTTCTC	TTAGGTTTAA	TGACTAGTCT	AGGAGCCTTG	ATTCTGTCAA	CGCATAATCC	5040
ACGCTGCCT	CTCTATGTTA	GTTTTTTATC	CAATGCCTTG	AATATTCTTT	TTTCAAGTCT	5100
AGCTATTTTT	GTTCTGGATA	TGGGGATAGC	TGGTGTGCT	TGGGGGACAA	TTGTGTCTCG	5160
TTTGGTTGGT	CTTGTGATTT	TGTGGTCACA	ATTAAACTG	CCTTATGGGA	AGCCAACTTT	5220
TGGTTTAGAT	AAGGAACTGT	TGACCTTGGC	TTTACCAGCA	GCTGGAGAGC	GACTTATGAT	5280
GAGGGCTGGA	GATGTAGTGA	TCATTGCCTT	GGTCGTTTCT	TTTGGGACGG	AGGCAGTTGC	5340



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TGGAATGCA ATCGGAGAAG TCTTGACCCA GTTTAACTAT ATGCCTGCCT TTGGCGTCGC	5400
TACGGCAACG GTCATGCTGT TGGCCCGAGC AGTTGGAGAG GATGATTGGA AAAGAGTTGC	5460
TAGTTTGAGT AAACAAACCT TTTGGCTTTC TCTGTTCCCTC ATGTTGCCCC TGTCCTTTAG	5520
TATATATGTC TTGGGTGTAC CATTAACCTCA TCTCTATACG ACTGATTCTC TAGCGGTGGA	5580
GGCTAGTGTT CTAGTGACAC TGTTTTCACT ACTTGGGACC CCTATGACGA CAGGAACAGT	5640
CATCTATACG GCAGTCTGGC AGGGATTAGG AAATGCACGC CTCCTTTTT ATGCGACAAG	5700
TATAGGAATG TGGTGTATCC GCATTGGGAC AGGATATCTG ATGGGGATTG TGCTTGGTTG	5760
GGCCTTGCCT GGTATTTGGG CAGGGTCTCT CTTGGATAAT GGTTTTCGCT GGTATTCTCT	5820
ACGCTATCGT TACCAGCGCT ATATGAGCTT GAAAGGATAG GAAATGCAAA AAACAGCTTT	5880
TATTTGGGAT TTAGACGGGA CTTTATTGGA CTCTTACGAA GCGATTTTAT CAGGGATTGA	5940
GGAGACTTTT GCTCAGTTT CTATTCTTA TGATAAGGAG AAGGTGAGAG AGTTTATCTT	6000
CAAGTATTCG GTGCAAGATT TGCTTGTGCG GGTGGCAGAA GATAGAAATC TGGATGTTGA	6060
GGTGCTAAAT CAGGTGCGTG CCCAGAGTCT GGCTGAGAAG AATGCTCAGG TAGTTTGTAT	6120
GCCAGGTGCG CGTGAGGTGC TAGCTTGGGC AGACGAATCA GGAATTCAGC AGTTTATATA	6180
TACTCATAAG GGAACAACG CTTTTACCAT TCTCAAGGAC TTGGGGGTGG AATCTATTT	6240
TACAGAGATT TTAACCAGTC AGAGTGGCTT TGTGCGGAAG CCAAGTCCAG AAGCGGCTAC	6300
CTATCTGCTA GATAAGTATC AGTTGAATTC TGATAATACT TATTATATAG GGGATCGGAC	6360
TCTGGATGTG GAATTTGCCC AGAATAGTGG GATTCAAAGC ATCAACTTTT TAGAGTCTAC	6420
TTATGAAGGG AATCACAGGA TTCAAGCGTT AGCAGATATT TCCCGTATTT TTGAGACTAA	6480
GTGATAAAAA GATTGTGTCA GTTTTGTGAC AGAGACCTAA CAACTATTT CAAGTAACCT	6540
AGTTTGTTAC AAGGAATAGA CAGTTCTGTT AAATAGGCCC GAGAGGGCTT TTTTCTACA	6600
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AATGTTATTA GCGTCAACAG TAGCCTTGTC ATTTGCCCCA GTATTGGCAA CTCAGCAGA	6720
AGAAGTTCTT TGGACTGCAC GTAGTGTGTA GCAAATCCAA AACGATTTGA CTAACCGGA	6780
CAACAAAACA AGTTATACCG TACAGTATGG TGATACTTTG AGCACCATTG CAGAAGCCTT	6840
GGGTGTAGAT GTCACAGTGC TTGCGAATCT GAACAAAATC ACTAATATGG ACTTGATTTT	6900
CCCAGAAACT GTTTTGACAA CGACTGTCAA TGAAGCAGAA GAAGTAACAG AAGTTGAAAT	6960
CCAAACACCT CAAGCAGACT CTAGTGAAGA AGTGACAACT GCGACAGCAG ATTTGACCAC	7020
TAATCAAGTG ACCGTTGATG ATCAAACCTGT TCAGGTTGCA GACCTTTCTC AACCAATTGC	7080

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AGAAGTTACA AAGACAGTGA TTGCTTCTGA AGAAGTGGCA CCATCTACGG GCACTTCTGT	7140
CCCAGAGGAG CAAACGACCG AAACAACCTCG CCCAGTTGAA GAAGCAACTC CTCAGGAAAC	7200
GACTCCAGCT GAGAAGCAGG AAACACAAGC AAGCCCTCAA GCTGCATCAG CAGTGGAAGT	7260
AACTACAACA AGTTCAGAAG CAAAAGAAGT AGCATCATCA AATGGAGCTA CAGCAGCAGT	7320
TTCTACTTAT CAACCAGAAG AGACGAAAAT AATTTCACA ACTTACGAGG CTCCAGCTGC	7380
GCCCGATTAT GCTGGACTTG CAGTAGCAAA ATCTGAAAAT GCAGGTCTTC AACCACAAAC	7440
AGCTGCCTTT AAAGAAGAAA TTGCTAACTT GTTTGGCATT ACATCCTTTA GTGGTTATCG	7500
TCCAGGAGAC AGTGGAGATC ACGGAAAAGG TTTGGCTATC GACTTTATGG TACCAGAACG	7560
TTCAGAATTA GGGGATAAGA TTGCGGAATA TGCTATTCAA AATATGGCCA GCCGTGGCAT	7620
TAGTTACATC ATCTGGAAAC AACGTTTCTA TGCTCCATTC GATAGCAAAT ATGGGCCAGC	7680
TAACACTTGG AACCCAATGC CAGACCGTGG TAGTGTGACA GAAAATCACT ATGATCACGT	7740
TCACGTTTCA ATGAATGGAT AAACCCGACT TGATAACATC ATTTTGACGA ATGAGATCTA	7800
GCTTTCGTGA TGGAAAGCGA TTCTCGTTCG TTTTCTCTT GTCATACTCT TCGAAAATCT	7860
CTTCAAACCA CGTCAGTTTT ATCTGAAACT TCAAAGCTGT GCTTTGAGCA ACCTGCGACT	7920
AGCTTCCTAG TTTGCTTTTT GATTTTCATT GAGTATCAAT TTGAATGGAA AATGGAAAGT	7980
TATCATCTTG TAATGAGTTA AGCAACATTC TTGCAATCTA TTTTACTTTA TATCACAATT	8040
AATTAGTCAA ATATTGATAA ATCAATAAAA AGAGAGGGGA AGAAATGCTA GAGATTCAAG	8100
ATTTACTGTA TCAACTCCCG TTGTCTGAGC AAGCGAGTAC GCAATTGTTT GAAAAAAGGC	8160
TTGGGATTAG TTTGACACGG TATCAGATTT TACTGTTTTT GCTGGAGCAT TCTCCTTGTA	8220
ACCAAATGGC GGTTCAGGAG CGTTTGAAAA TTGATCAGGC TGCTTTGACA CGGCATTTCA	8280
AAATTTTGGA AACGGAAGGT TTGGTGGAGC GTCATCGTAA TCCTGAAAAT CAGCGGGAAG	8340
TGTTGGTAGA GGCTGCGAAG TATGCCAAGG AGCAGTTAGT GGTGAATCCC CCTCTGCAAC	8400
ATATCAGGGT TAAGGAAGAG ATAGAAAGTA TCTTAACAGA GTTTGAGAGA ACAGAACTCA	8460
GCCGTTTATT AAATAAATTG GTTTTGGGTA TTGAAAATAT AGAAATTTAA GGAGAAATAG	8520
ATGTCAATTA TTTAACAAC GATCGTTGCT TTGGAGCATT TTTACATTTT TTATTTGGAA	8580
AGTATTGCCA CGCAATCAGA TGCGACTAGT CGTGTATTTA ATATGGAAAA GGAAGAATTG	8640
GCTCATCCGT CAGTAAGTTC ATTGTTCAAA AATCAAGGAA TTTATAAGGC TCTGCTAGGA	8700
GTCTTTCTCT TGTATGTCAT TTATTTCTCA CAGAAATTTAG AAATGTGAC TATTTTGTG	8760
TTATTTGTGA TTGGTGCTGC GACTTACGGC TCTTTAACAG CGGATAAAAA AATTATTTTG	8820
AAACAAGGTG GATCAGCTAT TTTGGCCTTG ATTAGTATTT TACTCTTTAA ATACACTTGA	8880

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AGGTCGATTC TAATCTCGCT AATCCTTTTT AATCCAGAAT AAGGGAAATA TGTTATACTT	8940
GTTTTTAAGA AAAAAGTCTC ATTGAATTGG TTTTGAGGAG TTAGAAATGA AAGTATTAGT	9000
GACAGGTTTT GAGCCCTTTG GAGGGGAAAA GGGCAATCCA GCTTTGGAGG CCATTAAAGG	9060
TTTACCAGCT GAAATCCATG GTGCTGAGGT CCGTTGGCTA GAGGTGCCGA CAGTTTTTCA	9120
CAATCTGCT CAAGTATTGG AAGAAGAGAT GAATCGTTAT CAACCTGACT TTGTCCTTTG	9180
TATTGGGCAA GCTGGTGGA GAACTAGTTT GACACCTGAA CGAGTGACCA TTAATCAAGA	9240
CGATGCATGC ATTTCTGATA ACGAAGATAA TCAACCGATT GACCGTCCCA TTCGCCCAGA	9300
TGGTGCTTCG GCCTACTTTA GTAGTTTGCC GATTAAAGCG ATGGTTCAAG CTATAAAAAA	9360
AGAGGGCTTA CCGGCCTCTG TTTCCAATAC GGCAGGGACT TTTGTCTGCA GCCATTTGAT	9420
GTATCAGGCT CTCTATTTGG TAGAAAAGAA ATCTCCATAT GTTAAGGCAG GTTTTATGCA	9480
TATTCCTTAT ATGATGGAAC AGGTGGTGAA CAGACCGACT ACTCCAGCTA TGAGTTTAGT	9540
GGATATTCGG CGAGGGATAG AAGCAGCAAT CGGCGCTATA ATAGAACATG GAGATCAGGA	9600
ACTCAAGTTG GTAGGCGGAG AAACCTATTG ATAGAAAAA GCTTGAGGGG AAAACCTTC	9660
AAGCTTTTGG ACGTTTTCGG GCCAATACTG CTCGGTAAAA CATAATTTTA GTGCATTGGA	9720
TATAAGGTAG GAGTGAAAAA CTAGCAATGC CAAAGGTAAT CCAATTGAGG AAGTACCAAG	9780
GAAGAAGCTG TAAATCTAGG ACAAAGTGCT GGAACCTGTA GCCCTTCATA AAGGAACGGC	9840
TAGTTTTTAG GATTCGTCTT GGTGGGACCT GTCCTAGGTC TAGACTATAA CAGAGAAGAA	9900
ATTCCACCTG TGAATAGGCA TAATACTGTG GAATATAGAG GATATTTCTT ACAATGATCA	9960
AGATGAGACT TGCAAGAAAG TAGAGTCCAA AGACCATGAG GAAACGCTCG GTTCAACTC	10020
ATGAGAGATC TAGATTTGGA AACTCAGGAT GTAGGGTGAC GAATTTTTTG GCTAAAAAGC	10080
TACTATAAAA GAGGAGGTAA ATCCCAAGTA AATTAGGCAT ACTCCATAAA AAGAGATAGA	10140
AACGTTTGAG AAGTAGGGTC AAAAAGGTTT GAGAAAAGCG CTCCTCATCA AAGAGAGCTA	10200
GGCTGTTTTT TACAGATGGC TCCGTTTTAG AATCTTTCAT GAGTGTCACT GTTGCATAGA	10260
CGGAACTGGT CAAAAGAATA GTCCCGATAA AGGAGACTAG TAGAGGAAAG AGGTAGGTTT	10320
GAAGTATTTG GCCAAGTATG CTGAAAAATG GCTGTTCTAA AACAGTCCCG TGGATCCGAG	10380
ATAAGGGATT AAGAAAACCA GATAAGATGA CCAGCATACT GGAAGGATA TAGAGGAGAA	10440
AGAGACGGGG GGTGTCAGCC TGAAAATGTT TTGACTCCTG ACGAATTGTT TTAAATCAA	10500
TTTTTGATA GTTCATTCTC TTATTATACC ATAGTTCTTA TACATAGTTC GTGACAGTTC	10560
CTACTTTTTT TGATAAAATC ATACAGTGTG TCCTTGGGCA CACTGTATGA ACTGGGACTG	10620

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TCTTTCCAG	CTTCGGAGGT	AAAAAATGTC	AGATTCACCA	ATCAAATATC	GTTTGATTAA	10680
GAAAGAAAA	CACACAGGAG	CTCGTCTGGG	AGAAATCATC	ACTCCCCACG	GTACCTTTCC	10740
GACACCTATG	TTTATGCCAG	TTGGGACACA	AGCCACTGTC	AAAACCTCAGT	CACCTGAAGA	10800
ATTGAAGGAG	ATGGGTTCGG	GAATTATCCT	ATCAAACACC	TATCATCTCT	GGCTTCGCCC	10860
TGGAGATGAA	CTCATTGCAC	GCGCTGGTGG	TCTCCACAAG	TTCATGAATT	GGGACCAGCC	10920
TATCTTGACA	GATAGTGGTG	GTTTTCAGGT	TTATTCTTTA	GCAGATAGCC	GTAATATCAC	10980
AGAAGAAGGA	GTAACCTTTA	AAAATCATCT	AAATGGTTCT	AAGATGTTCC	TATCCCCAGA	11040
AAAAGCCATC	TCTATTGAGA	ATAATCTGGG	TTCAGACATC	ATGATGTCTT	TTGATGAATG	11100
TCCTCAGTTT	TATCAACCTT	ATGACTACGT	TAAGAAATCG	ATCGAGCGTA	CCAGCCGTTG	11160
GGCTGAGCGT	GGTTTGAAGG	CTCACCCTCG	TCCACATGAC	CAAGGTTTGT	TTGGAATTGT	11220
GCAAGGTGCA	GGATTGGAAG	ACCTTCGCCC	CCAATCAGCT	CATGATCTTG	TCAGCATGGA	11280
TTTCTCAGGC	TACTCTATCG	GTGGTTTGGC	AGTGGGAGAA	ACCCATGAAG	AGATGAATGC	11340
GGTCTTGGAC	TTTACAACCT	AACTGCTGCC	TGAAAATAAA	CCTCGTTATC	TGATGGGTGT	11400
GGGAGCGCCA	GATAGCTTGA	TCGATGGGGT	CATTCGTGGG	GTGGATATGT	TTGACTGTGT	11460
CTTACCGACT	CGAATTGCTC	GTAACGGGAC	TTGTATGACC	AGTCAAGGAC	GTTTGGTTGT	11520
GAAAAATGCC	CAGTTTGCTG	AGGACTTTAC	GCCACTGGAT	CCTGAGTGTG	ATTGCTACAC	11580
ATGTAATAAC	TATACACGGG	CTTACCTTCG	TCACCTGCTC	AAGGCTGATG	AAACCTTTGG	11640
TATCCGCTTG	ACTAGCTACC	ACAATCTTTA	CTTCTTGCTT	AACCTGATGA	AGCAACTGCG	11700
ACAAGCCATC	ATGGATGACA	ATCTCTTGA	ATTCCGTGAG	TATTTTGTGG	AAAAATATGG	11760
CTATAATAAG	TCAGGACGTA	ATTTCTAAAA	TGGAATTGAT	ATAAAAAAAT	CCTAAGTTTT	11820
CTCTTAGGAT	TTTTCTTCTT	TTTTTGATAG	AATAAAGTGT	ACAATGAAAG	GAAGAATAAA	11880
CTCGTATGCG	CATTAAATGG	TTTTCCTCGA	TTAGG			11915

## (2) INFORMATION FOR SEQ ID NO: 97:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9069 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 97:

GAGAGGGCAA	CAGTTCTATC	GCTTCAAATT	TTTTCTTGGT	TTGCAGATAT	TCAAGAATCG	60
GGAGTTTTTC	TATAGTATTC	GGCAGATTTA	TTACAGCCAA	GCATCTCAAA	AATACGGACA	120

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GCATCCTCCA	TCTTTTCTG	GCCTTCCTTG	ACTCTACCTT	GCTTGCTATC	AAGGAGACCT	180
TCTGCCCACA	GATAACAAT	TCGGAAATAG	GTCTCATTTT	CCTTGTAGAA	ATGCTCTTCG	240
ATAACACGTT	TAAAATAATA	GGCATTGGTA	AATTCTTCAC	ACTCAATACT	AGCTAAAAAG	300
CCATTCAATA	GTATAGTATG	AAAAAGGTTT	CGATTGCCAG	ACATTTCCAT	TAGAAAATCA	360
GATTTACGTA	CCATTTCTCG	TACATATCTA	GTAAAAAGAG	AAACAGATAA	AAATGGAGAA	420
CTGACTGAAA	ATAAATTGAG	TTCATAGATT	CCCCAGATCT	CGGTAGAAAA	CAAATAATCA	480
TGAAGGACTT	TCCTTCCTC	TGCTGTTAAG	TCTACCTTTT	CATCTATGCT	CTTCATATAA	540
GACTTGATAA	TAATGGCATT	TAGAATATGT	TTCTGTTTGT	TGTGAGAATG	GGCATGCTTT	600
TATACTCCCT	GCGATATAAG	TCCTCAAGAG	GTGCTATATT	CTTTGGTTCC	AAGACATCTG	660
TAATTTCTTT	TCTCAACTCA	GAATCTGTAT	CATACTGGAA	ACCTCTTGCC	AGAAAGAGGA	720
TCTCCTCCAC	ACTGGCAGAT	ATATTTTCCA	GAGCAAATAG	AAACTTTTCC	ACCGAAAGCT	780
CACCTCTGACC	TGTTTCAAAA	CGGGACAACA	TAGACGGCGA	AAATTGTCCT	CCGGTTGCTT	840
GTCTCAGTGA	GATATTCTT	GACTCTCGTA	ATTGTCTAAA	GACTTTTCCA	ATCTGCTCCA	900
TAGACTTCCC	CTTGATTCCG	TATTTTCTTC	ATTTTATCAT	ATTTTTCAGA	AAATTCATCA	960
AAAACTTGCC	AAATTGTCAG	AATTATGAGA	AAATAGAGGA	TATTTATCAC	GTGGAGGGAC	1020
TGCTATGAGA	GACGATATCA	AAATCAATGA	CCGTGCTTTG	GCCTTGCAAG	ACCAAATTAT	1080
CGAAAACTA	GAGAAAGTTT	TTGATACAGA	TGTGGAATTG	GATGTTTACA	ATCTAGGTCT	1140
GATTTATGAA	ATCAATCTGG	ATGAAACGGG	GCTCTGCAAG	ATTGTCATGA	CCTTCACCGA	1200
TACTGCCTGT	GATTGCGCCG	AAAGCCTGCC	TATTGAAATC	GTGGCAGGTC	TGAAACAAAT	1260
CGAGGGTATC	AAAGATATCA	AGGTTGAAGT	TACCTGGTCG	CCTGCTTGGA	AAATCACACG	1320
AATCAGTCGC	TATGGCCGTA	TTGCCCTTGG	ACTACCACCT	CGTTAAGCAG	ACCAATCACT	1380
TTTAAAGATG	AAAATCAAAG	GGCAAAC TAG	AAAACTAGCC	GCAGGTTGCT	CAAAACACTG	1440
TTTTGAAGTT	ATGGATAGAA	CTGACGAAGT	CAGCTCAAAA	CACTGTTTTG	AGGTTGTGGA	1500
TAGAACTGAC	GAAGTCAGCT	CAAAACACTG	TTTTGAGGTT	GTGGATAGAA	CTGACGAAGT	1560
CAGCCCCAAA	CACTGTTTTG	AGGTTGTGGA	TAGAACTGAC	GAAGTCAGTA	ACCATACCTA	1620
CGGCAAGGCG	ACGTTGACGT	GATTTGAAGA	GATTTTCGAG	TATGAGTTTA	TTTTTTACCT	1680
GACTTGTCCA	TATCCAGAA	GTCTGTCACG	GCTCCGCGTG	AAGCAGATGA	TACGATGTGG	1740
GCATATTTAC	CGAGGACACC	ACGGCTGTAA	AGTGGTGGCA	AGGTTGTTTC	TGCCTTGCGT	1800
TTTCAAGTT	CTTCTTCGGA	TACGGCCATA	GAAATTTCTT	TGGTATCTTG	GTCAACCGTA	1860

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ACGATATCGC CGGTACGGAG ATAGGCAATT GGTCCACCAT CCTGAGCTTC AGGAGCGATA	1920
TGTCCAACAA CCAGACCATA AGTACCACCA GAGAAACGTC CGTCCGTCAA GAGGGCCACC	1980
TTATCTCCCT GACCTTTACC AACAAATCATT GAAGAAAGTG ATAGCATCTC AGGCATACCA	2040
GGACCACCTT TAGGTCCAAC AAAACGAACA ACGACTACAT CGCCATCAAC GATTTCATCT	2100
GTCAGAACGG CCTGAATCGC ATCTTCTTCT GAGTCAAAGA CCTTAGCTGG CCCAACGTGA	2160
CGACGCACTT TAACACCTGA TACCTTGCCA ACTGCACCGT CAGGAGCAAG GTTCCCGTTC	2220
AAGATGATAA GCGGACCATC CGCACGTTTT GGATTTTCAA GTGGCATGAT AACTTTTTTG	2280
CCTGGAGTCA AGTCTGCAAA GTCAGCCAAG TTTTCAGCTA CAGTCTTACC AGTACATGTG	2340
ATGCGATCTC CGTGAAGGAA ACCATTTGCC AACAAATACT TCATAACCGC AGGGACACCA	2400
CCGACTTCGT AGAGGTCTTG GAAGACATAC TGACCAGATG GTTTCAGTC GGCCAAGTGA	2460
GGCACACGTT CTTGAATCGT ATTGAAGTCC TCAAGTGACA AGTCAACATT TCGGGCATGG	2520
GCAATGGCGA GCAAGTGAAG AGTGGCGTTT GTAGAACCAC CGAGAGCCAT CGTTACAGTG	2580
ATAGCATCTT CAAAGGCTTC ACGAGTCAAG ATATCTGATG GTTTGAGACC AAGTTCCAAC	2640
ATCTTAACAA CAGCACGTCC TGCTGCTTCG ATATCTTCTT TCTTATCAGC TGATTACAGT	2700
GGGTGAGAGG ATGACCCTGG CAAACTCATC CCTAGAACTT CGATAGCAGT TGCCATGGTA	2760
TTAGCAGTAT ACATACCACC ACAACCACCA GGGCCAGGGC AGGCATTACA TTCAAGACGT	2820
TTCACGTCCT CAGCTGTCAT GTCACCGTGG TTCCATTTTC CGATACCTTC AAAGACAGAA	2880
ACCAAGTCGA TATCTTTACC ATCAAGATTT CCCGGTGCAA TAGTTCCACC ATAGGCGAAA	2940
ATAGCTGGGA TATCCATATT AGCAATAGCA ATCATAGATC CAGGCATGTT CTTGTCACAG	3000
CCACCGATAG CGACGAAGGC ATCCACGTTG TGACCACTCA TAGCCGCCTC GATGGAGTCC	3060
GCGATGATGT CACGAGATGT TAGAGAGAAA CGCATACCAG GCGTTCCCAT AGCGATCCCG	3120
TCCGCTACGG TAATGGTTCC AAAGTGTACA GGCCAAGCGC CTGCAGATTT GACACCTTCT	3180
TTAGCCAGTT TCCCGAAATC ATGCAAGTGA ATGTTACATG GTGTATTTTC CGCCCAAGTC	3240
GAAATCACTC CCACAATCGA TGTTTCAAAG TCCTTATCTG TCATACCAGT CGCACGAAGC	3300
ATAGCACGGT TAGGTGATTT AACCATGCTG TCATAAATGC TACTGCGGTG ACGTTTATCT	3360
AATTCAGTCA TCTTATCCCT CCCATTTTCTG TTTTACTAT TATAGCACAA TTTTCGCATG	3420
AAGAACAGAA TAAAATTCTT GAATTTTCTG AAAATTCTAT ACACATGTGA AATATTTAAA	3480
ATTAAAAACA ACAAAGCGGA TTAGTGCACCT TTCTGATGAC CAGAATATGC TTTTAAATCC	3540
GCTTTCTTTA AATAACGTAC TGTAATTTTT ACAGAAATTC TTTCAAATAA GTGTATTTAA	3600
CATCTATCTT GCATTATAAA TTTCTAGAAC CTTCCTTTTT ATATTGATT CACTCAAACC	3660

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ATACTCATTGA AGAAGATAAT CCATTTTCCC TACTTGACCG AATCTTTCTT GAACACCCAT	3720
CCGATGAATT TTTGTTATTC CATCATCAGA GAATAATTCA CATAAAGCAC TGCCAATTCC	3780
ACCTATCTGA TTGTGGTTTT CTACAGTAAA TATAGTTTTT CCACTTAACA TTGTTTTTAT	3840
CTGTTCTGGT ATCGGTTTGA TTCTAAATAA ATCTATCACA CCTACTGAAT AACCTAATTT	3900
AGACAGTTCA TCTGCAACTC GAATACTTGG AGCAACCATT ATGCCAGAAG CAACGATTAC	3960
AAGATCTTCA CCATGCCTTA ACTCAATGTA GCCTTTAGAA AAATCTTCTC CACCTTGATA	4020
CACAGGAACT GGAGCTTTTC TAATTGTTTCG AATATATTTT AGTCCTTTTA AGTCTAATGT	4080
CTGGTTCAAT ATTTCACGAA ATTGGATATC ATCAGTTGCT TCGAAAATGA TTGATTTAGG	4140
AATTAAACGT AACAATCCAA TTTCTTCAA TGGCATATGT GTTCCACCAT TCATCTCTGC	4200
CGTTACTCCT GCATCTGATC CAATCACAGT GGCATCCAAT TGTGCGTATC CAAGAGAAAT	4260
AAATAATTGA TCAAATACTC TTCGTGAAGC AAAAGGACCA AATGTATGAA GATAAGGTCT	4320
AAACCCCTGA ATAGACAAGC CTGCTGCAAG GCCGACCATT TCTGCTTCCA TAATCCCAAC	4380
ATTACATAA CGGTCTCCAA AGTCCTTTTC AAGATTATTA GTAGCCATCG AACTTGACAA	4440
ATCGGCTTCT AAGACTACTA TATCAGAATC ACTTTGATTA GCCTCTAAAA GGAAGTCTCT	4500
ATATACATGC CGTAATTCTT TCGTACTTCT CATCATCTCG TTTCTCTCAA TTCCTGACTT	4560
AATCTTTCTA CAACTGAAGT TAACATTTGT TTCTCCTCTA CAGTAGGGCG AAGATGATGA	4620
TTGGATTTCA TTTCTTCCAG CTCTTGAACC CCTTGACCTT TAATAGTATC TAATACAATG	4680
CACCTAGGTG ATGAATTATT TGAAGTTTTT AATTGGACAA TCCCTTCATA AATTTCTCTA	4740
ATATCTGAAC CCTTGACCCT AATGGATTCA AATCCAAATG CTGAAAATTT TTCTACGAAA	4800
TCACCTGGAT TACAAATATC CTTTGTAAAA CCATCTAATT GTTTTTTGTT ATCATCAACA	4860
AATACAATTA AGTTGGATAA CTGTTGATGA GAAGCAAACCT GTATAGCCTC CCAACATTGT	4920
CCCTCATTTA ACTCACCATC TCCAACAATA GCGTAAGTAT AAAAGGGACT CTTTCTTATT	4980
CTCTGACCAT ATGCAAGTCC AGTTGCAACA CTAATTCCTT GTCCTAAAGA GCCCGTTGTC	5040
ATATCTATGC CTGGCGTTAG ATTTCTATCA GGATGAGACG GTAATTGGT TCCATTGTGA	5100
TTTAAAGAAT ATAAGAATTC TTTGTCAAAG AAACCATTCA AATAGAGTGT ACTGTATAGA	5160
GCTGGTCCTC CGTGACCTTT TGATAATATG AAATAATCTC TATCTCGTGC TGCAAATATT	5220
TCTGGAGTCA TTGGCATTAT TTCACCATAA AGCACCCTA AAACCTCTAC GATAGACAGA	5280
CTTCCTCCGT AATGTCCGAA TCCAAGATGA TTCAATGTTT TAAGAGTATT TAATCGGATG	5340
TTAGTCGCAA ATTTTCTTAA CCCATCTTCT CTATTTTAC TTAATCAT CCCTTATTCC	5400

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TCCGTTGCAG ATGGCTTTTT AATAAAGGAT ACTCCAAACA TAACTGCTAG AATAAGAACA	5460
AGACCAATCA CAATGCCTGC TTGTGAGCCA AATTGATTTA ACATTCCTAA AATAATTCCT	5520
GATAGACCAA AATCTGCATC TGAGAAAGTT GATCCTTGGA AACCAAGTCC TCCCAAACT	5580
GGCATTAAAA AGACTGGAAG AAAACTGATT AAAATACCTT GTAAAAATGC TCCAATAGTG	5640
GCTCCACGAA CACCACCAGA TGCATTCCCA ATGACACCTG CAGTCGCTCC ACAGAAGAAA	5700
TGAGGCACAA CACCTGGTAA GATAACAACC GTTCTGAAG CAATCATAAT TACCATACTT	5760
ACTAAACCAC CAACAAAAC AGAGATAAAT CCAATTAGAA CTGCATTGGG TGCATAAGTA	5820
TAAACAATCG GACAATCCAA AGCAGGTTTT GAATTAGGTA CAAGACGCTC TGAATACCT	5880
TTAAAGGCTG GAACAATTC GCCCAAAATA AGGCGAACAC CTGCTAAAAT AACAAATACC	5940
CCTGCTGCAA ATTGACCTGC TAATTGTAAA GCATAAACTA GACCACTTGT ACCACTACTG	6000
ATTTCTTTTT CTATATATTC TGACCCTGCA AAGATAGCTA CAATAATGTA AATAACTGCC	6060
ATGGATAAAG TAATACTAAC AGTACTATCA CGTAAAAAAG CTAAACTCTT TGGAAATTTA	6120
ATGTCTCTG TTGATTTGA TTTGTCACCG ATAAGGCTAC CAGTAAAACC ACTCAACCAA	6180
TATCCCAAAG AACTGAAATG ACCTAAAGCT ACCTTGTCAT TTCCAGTTAA TTGAACCATA	6240
TATTTTGGCA CAAATGCTGG GGAAATACTC ATAATAATAC CGAGTGCTAA TCCTCCTAGT	6300
AAGATGAGAG GCAAGCTAGT AAAGCCAGCA ACTGATAAAA TGACCGCAAT CATACTGCC	6360
ATATATAGAG TGTGGTGCCC TGTTAAAAAA ATATATTTAA ATCGAGTAAA ACGAGCGATT	6420
AAGATATTGA ACACCATGCC TGCAAACATA ATCATTGCAG TAGCTGAGCC ATATGTTGTT	6480
AAAGCTACAG CTACAATTGC TTCATTATTC GGCACAACGC CAGATAAATG AAAAGCATGC	6540
TCAAACATGG TACCAAATGG ATTTAAAGAA TTTTGTACAA TTCCTGCACC ACCAGATACA	6600
ACTAAGAAAC CAACAAAGGT CTTAATTCCA CCTTTAATAA TATCAGGTAA TTTCTTCTTC	6660
TGAAGAACTA ATCCTAAGAT TGCAATTAAA GCTACTAAAA TAGCTGGTGT ACTAACAATA	6720
TCCAATATGA ACTTCATCAT GACGCTAGCC TCCTATATAA GTCCTTTTTC TTCACAAAT	6780
TTAGTAATTA ATTCTCGTAG TTCATCCATA TCAATAATAC TATTTAAGAT ACGAACATCT	6840
CCAAGATGAC TAGCTGAATC AGCTAGATCA CGACCAACAA TCCAAATATC AGCTGCATTT	6900
GGATCTGCTC CACCTAAATC ATAATGTTCA ACTTCTACAT CCGAAACATT CAAATCACTC	6960
AATACAGATT CAATATTCAT CTGTACCATA AAACCTGAAC CTAATCCTGA ACCACAAGCT	7020
GTACCAATTT TTAACATTAT CTAATCCTCC TGTMTAATTA TCATTTTAAT GTCATCATAG	7080
TTTTTTGATG ATATTAAAGT TTGAACATGA TTTTATCTC TTAAAATTGT TGTAAATGT	7140
GACAAAGCCT TTAAATGACT CTCATTATCA ATGGCTGCAA TACAAATCAA CAATCTTACC	7200



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TCTTGTTCTG GATTATCCAA TAAATAAATC GGTTCTTCCA AAACCTAACAT TGACATTCCCT	7260
ATTTCATTCA CACCTTCATC TGGCCGAGCG TGAGGAATTG CTACTCCCTT CCCTAAATTA	7320
ATAAAAGGTC CAAACTCTTC TACTTTTTGA ATCATTGCCT CAGGGTAGTT CTCAGTTATC	7380
TTATCTTGAT CAAAAGCGG TTTAGCTGCT AAACGAATCG CCTCCTTCCA TCCTAATTTT	7440
TGCCAACTAA CCTGATAGGT TTCTTTGGTA ATAAGTTGTT CTAGCACTGG TACAATTTCC	7500
TTTCTATCAT TTTTTGGTA AAGATAATTC TTAAACGCCA ATCTTAATTC CAATCTTGT	7560
GTAATAATTC CATATCTTTT GACAATATTC AGGATTGTT CAATCTCAAA ATCTCCATAC	7620
TCTAAATTCG GAAATCTTT TAACACTAGT TCTACTAGTT GTATTGCTTG CTCTTCAGTC	7680
ATCATAACCG AAACCTAGATA ATTTGGCTTT TCTGTCTCCA CCTTTATGGT AGAAAAAACC	7740
ATATCATAGT CACTACTAGC TTTCACCTGT AAATCATCAA TCTTTGAGGT TCCTATAAAC	7800
TCAATTTGAG GAAATAATGC TAATAGATTC TCTTTTAACA TCAATGAAGA ACTAACACCA	7860
TTAGGACAAA TGATTGCTGC TTTATACCAT TTTGAGGCA AAGTATCTGC TTTCTTTAAA	7920
TAACCTCCGA AATGGATAAC AAAATATGCT GTTTCACTAT CAGGTATGGG ATTGTCAATA	7980
CGTCCATCA AGGGCATCAA AGAATCTTGT ACTAATTCAA ATAAATCAGG ATAATGTTCT	8040
TTAACATGCA ATACATATTC ATTTGAACTA GGTAGGCCGA ACTTTAATCT ATAGTAAGCC	8100
GGTATAAGGT GGCGCGGAAG ATTTTCTCTC AATCCTTCCC TTTGTTTAAA ATGTAACAAA	8160
GAAATATCTT CCATTCTACT TATAATAGCC TCTGTTAATT GATTAAAGTA AACCGGAGCA	8220
ACATCTACTT CACCTTCAAA GCAACTTGAT AATAAACCGG TGATATAGCG ATAATCATCC	8280
TCAGAAAACA CCGTATCTAT AATTCCCAAA TCAACCACTG TATCCAATAA AATAGTGGTT	8340
ATATCTTGAA TAACAGGAGA TACTAATGTC TCTGAAAGAC ATACTCTTTC AACATCCCTT	8400
TGATACCTAC ACAGAATGAA TACTAAACCG AAAAGGTAAA CTTTTAATTG ATTAACAATA	8460
GGTACTAGCT GTAGCTTCTC ATAATAATCT TTAACCTACCT GATCAATCAA ATCATAAGTT	8520
AATGAATACC CCCAACTGGA TAAAACATAA TCCAAACCCC AAATCCCTAT GGAGGATTCC	8580
AGCAACTCAC TAACCATTTG AAAAGCTAAG CGGTGCTTAT TCCACTCTGA ACCGTGTAAA	8640
GTATAACCTT TTGCTCTACT GTACCCTAGC TCCAAATCAT TATCTAACAT AATCTTTCTT	8700
AATGATTGAA TATCAGATAA GGTGTATTTC TTACTTACTT TCAAAAAGTC TTGGTAATGA	8760
CTATTCGATA TAAATCTAA TCGGCAAAAA GTGTAAAGAT AGATTAAAGC TAAGCGAGTC	8820
GACTTTGGTA AAACCAATTC ATCCGACTTA ATAATATCTG TCAAAGACTG CTTCGTACGA	8880
TTTGATAAAC TATAGCGACC TTGCTTTTAA TCCAGCACTA TCCCTTTATT AGCTAGATAA	8940

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GGCACTAAAT AATCTATTCC TTCTTTGACT TCCTTTATAG GTAAGCTCAC CTTAACAGAT	9000
AATTCATATA ACGATAGCTC ACAATGATCC ATCAAAGTCA TCAAAATAAC TAGTGCTCTA	9060
TAATCAAAC	9069

## (2) INFORMATION FOR SEQ ID NO: 98:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 8654 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 98:

CGAGACAACA AGATGAAGAA AAATTTGCCC TATCGTTTGT GCGGCTTGCA AGTGTAGCAC	60
TTCTTGACGC CTGTGGAGAA GTGAAGTCTG GAGCAGTCAA CACTGCTGGT AACTCAGTAG	120
AGGAAAAGAC AATTAAAATC GGGTTTAACT TTGAAGAATC AGGTTCTTTA GCTGCATACG	180
GAACAGCTGA ACAAAAAGGT GCCCAATTGG CTGTTGATGA AATCAATGCC GCAGTGGTAT	240
CGATGGAAAA CAAATCGAAG TAGTCGATAA AGATAATAAG TCTGAAACAG CTGAGGCTGC	300
TTCAATTACA ACTAACCTTG TAACCCAATC TAAAGTATCA GCAGTCGTAG GACCTGCCAC	360
ATCTGGTGCG ACTGCAGCTG CGGTAGCGAA CGCTACAAAA GCAGGTGTTT CATTGATCTC	420
ACCAAGTGCG ACTCAAGATG GATTGACTAA AGGTCAAGAT TACCTCTTTA TTGGAACTTT	480
CCAAGATAGC TTCCAAGGAA AAATTATCTC AAAGTATGTT TCTGAAAAAT TAAATGCTAA	540
GAAAGTTGTT CTTTACACTG ACAATGCCAG TGAATATGCT AAAGGGATTG CAAAATCTTT	600
CCGCGAGTCA TACAAGGGTG AAATCGTTGC AGATGAAACT TTCGTAGCAG GTGACACAGA	660
CTTCCAAGCA GCCCTTACAA AAATGAAAGG GAAAGACTTT GATGCTATCG TTGTTCTCTG	720
TTACTATAAT GAGGCTGGTA AAATTGTAAA CCAAGCGCGT GGCATGGGAA TTGACAAACC	780
AATCGTTGGT GGTGATGGAT TCAACGGTGA GGAGTTTGTA CAACAAGCAA CTGCTGAAAA	840
AGCATCAAAC ATCTACTTTA TCTCAGGCTT CTCAACTACT GTAGAAGTTT CAGCTAAAGC	900
TAAAGCCTTC CTTGACGCTT ACCGTGCTAA GTACAATGAA GAGCCTTCAA CATTTCAGC	960
CTTGGCTTAT GATTCACTTC ACCTTGATAG AAACGCAGCA AAAGGTGCTA AAAATTCAGG	1020
TGAAATCAAG AATAACCTTG CTAAACAAA AGATTTTGAA GGTGTAAGT GTCAAACAAG	1080
CTTCGATGCA GACCACAACA CAGTCAAAAC TGCTTACATG ATGACCATGA ACAATGGTAA	1140
AGTTGAAGCA GCAGAAGTTG TAAAACCATA ATAGAAAAAT GTTGAAATAG GGAATGAGCC	1200
TTTGACTCAC TCCCTGTTTC GATATTTAAT ACTCTTCGAA AATCTCTTCA AACTGCCTCA	1260

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ACGTCGCCTT GGATTATATA TGTGACTGAC TTCGTCAGTC TTATCTACAA CCTCAAAGCA	1320
GTGCTTTGAG CAACCTGCGG CTAGTTTCCT AGTTTGCTCT TTGATTTTCA TTGAGTATAA	1380
GAACCTATCA AAAAGTGAGG GAAAACCCCTC GGAATTATAA ATAGAAAGAG TGAATCTTAT	1440
GCTCCAACAA CTCGTAAATG GTTTGATTCT AGGTAGTGTT TACGCGCTGT TAGCCCTAGG	1500
ATATACCATG GTTTACGGAA TTATCAAGCT CATCAACTTC GCCCATGGTG ATATTTATAT	1560
GATGGGAGCC TTTATCGGTT APTTCTTGAT CAATTCTTTC CAAATGAATT TCTTTGTAGC	1620
GCTTATTGTA GCTATGCTAG CGACAGCTAT TCTTGGTGTC GTGATTGAGT TTCTTGCTTA	1680
CCGACCTTTG CGCCACTCTA CTCGTATTGC TGTTTTGATT ACGGCTATTG GGGTTTCTTT	1740
CCTATTGGAG TATGGAATGG TCTATCTGGT TGGTGCCAAT ACCCGTGCCT TCCCTCAAGC	1800
GATTCAAACA GTTCGATATG ATTTGGGACC AATTAGCTTA ACAAATGTGC AGTTAATGAT	1860
TTTGCCCATT TCCTTGATTT TGATGATTTT GTTACAAGTC ATTGTCCAAA AGACTAAGAT	1920
GGGGAAAGCC ATGCGTGCAG TATCAGTAGA TAGCGACCGG GCGCAATTGA TGGGGATCAA	1980
TGTAAACCGT ACGATTAGCT TTACCTTCGC TTTGGGTCTT GCTCTTGCGG GTGCGGCTGG	2040
TGTTCTGATT GCTCTTTATT ATAACCTCTT TGAGCCTTTG ATGGGGGTTA CTCCAGGTCT	2100
TAAATCTTTC GTTGCCGCGAG TACTTGGTGG TATCGGAATT ATTCCTGGTG CGGCTCTTGG	2160
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TGATGCCATT GTTTATGGAA TCTTGTGTTT GATCTTGATT GTCCGCCCAG CTGGTATCCT	2280
TGGTAAGAAT GTGAAAGAGA AGGTGTAAAC GATGAAGGAA AATTTAAAAG TTAATATTCT	2340
ATGGTTACTC CTTTTGTTAG CTGGCTATAG CTTGATTAGT GTACTGCTTT CAGTCGGAGT	2400
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TGGTCTCAAC TTAATCGTTG GTTTTTCAGG ACAATTTTCA CTGGTCATG CTGGTTTCAT	2520
GGCGATTGGT GCCTATGCAG CAGCTATTAT TGGTTCTAAA TCACCAACCT ACGGTGCCTT	2580
CTTTGGAGCT ATGCTGTAG GGGCTTTGCT TTCAGGAGCA GTTGCCTTAC TTGTCGGCAT	2640
TCCAACCTTG CGCTTGAAGG GGGACTATCT TCGGTAGCA ACTCTGGGTG TTTCTGAAAT	2700
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GATTCTTAAC TTTACAACCT GGCAATGGT TTAATTCTTT GTCGTGATTA CAACCATTGC	2820
AACCTTGAAC TTCTTGCCTA GCCCAATTGG TCGTTCAACC CTCTCTGTTT GTGAAGATGA	2880
AATCGCTGCT GAGTCAGTTG GGGTTAATAC GACTAAAATT AAAATCATCG CTTTTGTCTT	2940
TGGTGCCATT ACTGCAAGTA TTGCTGGGTC ACTTCAGGCA GGATTTATCG GGTCTGTTGT	3000

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ACCGAAAGAT TACACCTTCA TCAACTCAAT CAACGTTTTG ATTATTGTTG TATTTGGTGG	3060
ACTCGGTTCC ATTACAGGTG CGATTGTTTC GGCTATTGTT CTGGGAATTT TGAATATGCT	3120
TCCTCAAGAT GTTGCTAGTG TGGTATGAT TATTTACGCT TTGGCCTTGG TATTGGTAAT	3180
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AAAACTAAG AAGGAGGAAC AAAACTAATG GCATTACTTG AAGTAAACA GTTAACCAA	3300
CATTTTGGTG GTCTAACAGC TGTGGAGAT GTGACTCTTG AATTGAACGA AGGGGAACTG	3360
GTTGGATTAA TCGGTCCAAA CGGAGCTGGG AAAACCACCC TTTTCAACCT TTTGACCGGT	3420
GTTTATGAAC CAAGCGAGGG AACAGTAACC CTAGATGGTC ACCTTTTGAA TGGGAAATCA	3480
CCTTATAAGA TTGCCTCTTT GGGACTTGA CGTACTTTCC AAAATATCCG TCTCTTTAAA	3540
GATTTAACAG TTTTAGATAA TGTTTTGATT GCTTTTGGA ACCATCACAA ACAGCATGTT	3600
TTTACTAGTT TCTTACGCTT ACCAGCTTTT TACAAGAGTG AAAAGAATT AAAGGCTAAA	3660
GCTTTGGAAT TGTGAAAAT CTTTGATTTA GATGGTGATG CAGAGACTCT TGCTAAAAAT	3720
CTTCTCTACG GACAACAACG TCGTTTGGA ATTGTTCTGT CCCTTGCTAC GGAACCTAAA	3780
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GCTCAAGGAA CTCCAGACGA AATTAAGACC AATAACGCG TTATCGAAGC TTATCTAGGA	4020
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AAAACTTGA AATGGGAGCT TTCTTAAAGA AAAATCGTGA AGAAAATCAA GCTAACTTGA	4380
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CAGGAACAGG AAAAGAACTC GCTTCATCAG AAGAAGTCAG AAAAGCATAT CTAGGTGGCT	4740
AAAACAATCC AGTGGATTGT TTTAGTCGGC AGATGGAGAT TACGAAGTAA TCATCAATAT	4800

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AGTCCGGGGG ACCTTTT TAG TCGGTAGATT GAGATTGCAA ACAAATCTGC ATCTACATTG	4860
AAAGCTTAAT TTCTAATAAT TGAAAAAATC GAATGAAAAA TTTCTTACCT TCATTACACAG	4920
AGCTCGATTT CAGAGCTCTT TTTGCTAGCT TATTCACTACT TTTCTGAATT TCGAAAAAGA	4980
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ATAACAGTAT CTCATGCAGC AGATTTGATG AGAGAGCAAG GTTGCACCG TCTGCCTGTT	5160
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TCTAAAGCAA CAAGCTTTT TATCTATGAG ATGAATTATC TTCTGAATAA GACAAAAGTA	5280
AAAGATGTCA TGATTGCGA TGTGTGCTACT GTCTCAGGCT ATGCTAGTCT AGAAGATGCA	5340
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GAAGAAGGGA TTCGTGTACG CTTTGTTACA GAAGATGAAG TTGGTGTCT TGGAAAAATT	5520
GTTCCTTTGA TTGTAGAAGA AAATTGAAT ATCTCCATA CAGTCAATAT TCCGCGTAAG	5580
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GGAAAGAAAT GATAAAATAT GCTATAATGA AATAATGTAA AAAAGGAGTA TTTATGGACA	5820
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CTCTTTGACC TCGAAGGGCT AGAGGAAGAG ATTGCCATCT TGGAAAAACA GATGACAGAA	5940
CCTGATTTT GGAACGATAA TATTGCGGCC CAAAAACGT CGCAAGAATT AAATGAATTA	6000
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TTGGATTTT TGGCTGAAGA CGAGTCAGTG CATGATGAAC TGGTAGCGCA GTTAGCCGAA	6120
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GATATGTTGC TTCGTATGTA TACTCGTTAT GGTAAATGCTA AAGGCTTTAA ACTGGAAGTG	6300
TTGGATTACC AAGCAGGTGA TGAGGCTGGT ATTAAGTCGG TAACTTTATC ATTTGAAGGG	6360
CCTAATGCCT ATGGTCTCCT CAAGTCAGAA ATGGGTGTTT ACCGCTTAGT GCGAATCTCA	6420
CCATTTGACT CTGCCAAACG TCGCCATACC TCTTTCACAT CTGTAGAAGT GATGCCAGAA	6480
TTGGATGATA CTATTGAAGT GGAAATCCGT GAAGATGATA TCAAGATGGA TACCTTCCGT	6540

750

TCAGGTGGTG CCGGTGGACA AAACGTCAAT AAGGTTTCAA CAGGTGTACG TTAAACCCAC	6600
ATTCCAAC TG GAATTGTTGT CCAATCAACA GTAGATCGTA CCCAGTATGG AAATAGAGAT	6660
CGTGCCATGA AGATGTTGCA GGCTAAGCTC TATCAAATGG AGCAAGATAA GAAGGCTGCG	6720
GAGGTAGATT CTCTCAAAGG TGAGAAAAAG GAGATCACTT GGGGAAGCCA AATCCGTTCT	6780
TATGTCTTCA CGCCTTATAC TATGGTAAAA GATCACCGAA CTAGCTTTGA GGTGCTCAG	6840
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AATACGACAA CGGAACAACT GCTCTACGCG GTGTTTCGGT TAGCGTTCAA CCGGGGGAAT	7020
TTGCTTACAT CGTAGGACCT TCAGGAGCAG GGAAGTCAAC TTTTATTCGT TCTCTGTATC	7080
GTGAAGTAAA AATCGATAAA GGAAGCCTAT CAGTTGCTGG TTTTAATCTG GTTAAGATCA	7140
AAAAGAAAGA TGTCCCGCTT CTACGTCGTA GTGTTGGGGT TGTCTTCCAG GATTATAAAT	7200
TGTTACCAAA GAAACTGTC TATGAAAATA TTGCTTACGC TATGGAAGTA ATCGGGGAAA	7260
ATCGCCGTAA TATCAAAAGA CGAGTGATGG AAGTTTTGGA CTGCGTTGGA TTGAAGCATA	7320
AGGTTTCGTT TTTCCCAAAT GAACTCTCAG GTGGGGAGCA ACAGCGGATT GCGATTGCGC	7380
GTGCAATTGT AAATAATCCC AAAGTATTGA TAGCTGATGA GCCAACAGGA AATCTGGATC	7440
CGGATAATTC ATGGGAAATT ATGAATCTCT TGGAACGGAT TAACyTACAA GGAACAATA	7500
TTTTGATGGC GACTCATAAT AGCCAGATTG TAAATACCTT GCGCCACCGT GTCATTGCCA	7560
TTGAAAATGG CCGTGTCTT CGTGACGAAT CAAAAGGAGA GTATGGATAC GATGATTAGT	7620
AGATTTTTTC GCCATTTATT TGAAGCCTTA AAAAGTTTGA AACGAAATGG TTGGATGACA	7680
GTAGCTGCTG TCAGTTCAGT CATGATTACT TTGACCTTGG TGGCAATATT TGCATCTGTT	7740
ATTTTCAATA CAGCGAACT AGCTACAGAT ATTGAAAATA ATGTCCGTGT AGTAGTTTAT	7800
ATCCGAAAGG ATGTGGAAGA TAATAGTCAG ACAATTGAAA AAGAAGGTCA AACTGTTACA	7860
AATAATGACT ACCACAAGGT ATATGATTCT TTGAAGAACA TGTCTACGGT TAAAAGTGT	7920
ACCTTTTCAA GTAAAGAAGA ACAATATGAA AAATTAACCG AGATAATGGG AGATAACTGG	7980
AAAATCTTTG AAGGAGATGC CAATCCTCTC TATGATGCCT ATATTGTAGA GGCAAACACT	8040
CCAAATGATG TAAAACTAT AGCCGAAGAT GCTAAAAAAA TTGAAGGTGT CTCTGAGGTT	8100
CAAGATGGCG GTGCCAATAC AGAAAGACTC TTCAAGTTAG CTTCAATTTAT CCGTGTTTGG	8160
GGACTAGGGA TTGCTGCTTT GTTAATTTTT ATCGCAGTTT TCTTGATTTC AAATACCATT	8220
CGTATTACCA TTATTTCCCG CAGTCGCGAA ATTCAAATCA TGCGCTTGGT CGGAGCTAAA	8280
AACAGTTATA TCCGTGGACC GTTCTTGTTA GAAGGAGCCT TTATCGGTTT ATTGGGAGCT	8340

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ATCGCACCAT CTGTTTTGGT CTTTATTGTT TATCAAATTG TTTACCAATC TGCAACAAA	8400
TCGTTGGTAG GGCAAAATCT ATCCATGATT AGTCCAGATT TATTTAGTCC GTTGATGATT	8460
GCCCTACTAT TTGTGATTGG GGTTTTCATT GGTTCATTGG GATCAGGAAT ATCCATGCGC	8520
CGATTCTTGA AGATTTAGGT AAAATAGCTG CTTTATGAG GAGATTGTAA AATCTCCTTT	8580
TTTGCTACAA GAGTTTTTGA AAAGAGATGC GCAGAAGAAA AGAGCTTCCA AAGAAGTCCC	8640
CCAGAGAAGA CTTC	8654

(2) INFORMATION FOR SEQ ID NO: 99:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 19718 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 99:

TGTCGCGTCA AAATCATTAC TATGGCTATG TATAGCCCTT ACTATGACTT GGCTAAACAC	60
GTTTCGCTTTC AAATTTCTAG GCTCAGGCTG AAACAGTCTC CCAGGCTGTT CACTCCCGAA	120
TGCTAAAATC GTTCTTGATC GCTTTCACAT TGTACAACAT CTTAGCCGTG CTATGAGTCC	180
TGTGCATGTC CAAATCATGA ATCAGTTTCA TCGAAAATCC CATGAATACA AGGCTATCAA	240
GCGCTACTGG AAATCATTTC AACAGGATAG CCGTAAACTG AGTGATAAGC GATTTTATCG	300
CCCTACTTTT CGCATGCACT TAACAAATAA AGAAATTCTT GACAAGATTT TAAGCTATTC	360
AGAAGACTTG AAACACCACT ATCAGATCTA TCAACTCTTA CTTTTTCACT TTCAGAACAA	420
AGACCCTGAG AAATTTTTCG GACTCAATTGA GGACAATCTG AAGCAGGTTT ATCCTCTTTT	480
TCAGACTGTC TTTAAACCT TTCTCAAAGA TAAAGAAAAG ATTATCAACG CCCTTCAACT	540
ACACTATTCT AATGCCAAAC TGGAAGCGAC CAATAATCTC ATCAAACCTA TCAAGCGCAA	600
TGCCTTTGGT TTTGAAACT TTGAAAACCT CAAAAACGG ATTTTATCG CTTTGAACAT	660
CAAAAAAGAA AGGACGAAAT TTGTCCTTTC TCGAGCTTAG CTGACTTCAA CCCACTACAG	720
TTGACAAAGA GCCTAATTTT CATAAAAATT GACATGGAAA TTATAAAACC ATTACTAGTT	780
TAGTCCTTTT TGATAACGTG CCAATTCGGC TTGGTTCGCC CAAACATAGT GACCTGGACG	840
GATTTCTACC ATAGATGGCT TATCAGTCTC ATAGTCGTGT TGACTTGGAT CGTAAACCTT	900
CAAGACCTTC TTACGTTCCA AGATTGGATC TGGGATTGGT ACCGCTGAAA GCAAGGCTTG	960
AGTATATGGG TGAATTGGAT TGTAAACAA TTCTTCTGTT TCTGCAACCT CTACAATAAC	1020

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ACCCTTGTA	ATAACTGCCA	TACGATCTGA	AATAAAGCGA	ACAACCGACA	AGTCATGGGC	1080
GATGAAGAGA	TAGGTCAGGC	CGAGCTCTTT	TTGGAATTTT	TTGAGCAAGT	TCAAGACTTG	1140
GGCACGTACA	GAAACGTCCA	AGGCTGAAAT	TGGCTCATCT	GCAATAACAA	AGTCTGGTTG	1200
CATGACCAAG	GCACGGGCAA	TACCGATACG	TTGACGTTGA	CCGCCTGAGA	ATTCATGAGG	1260
GTAACGAGTC	AAGTGCTCAG	CAAGAAGACC	TACTTCACGG	ATAATATTTT	GAACCTTCTC	1320
TTTACGTTCT	TCTTCATCCT	TAAATAAAGC	GTGATTGTAA	AGACCTTCAG	AAATAATATA	1380
ATCAACAGTC	GCACGTTTAT	TCAAACCTGC	GGCAGGGTCT	TGGAAAATCA	TCTGGATTCTG	1440
ACGAATCAAT	TCCGCAGCTT	GTTCACGCGA	TTTCTTACCA	TTAATCTTTT	GACCATCAAA	1500
AATGATATCT	CCATTACTTG	TATCATTTAG	ACCGATGATA	GCACGACCAA	TAGTTGTTTT	1560
CCCCTACCG	GACTCACCTA	CAAGCGAGAA	AGTTTCTCCC	TTGTTGATAA	AGAAGTTAGC	1620
ATTTTAAACC	GCGACAAACT	TCTTACTTCC	TTCACCGAAG	GAAATTTCTA	AATCTTTGAT	1680
TTCTACTAAT	TTTTAGACA	TTTCTTCTCT	CCTAGTCAGC	CAGATGGGCA	AATCCCATT	1740
TTTCACGGAT	CTTATCATGG	AGATTGCAA	TCACAGCTGG	TTTTTCTACT	TTCGGAGCAT	1800
CCTCATGAAG	AAGCCAAGTT	TTAGCCCAAT	GTGTCTCTGA	TACTGAGAAT	TGAGGAGCTT	1860
TTTGTTGAA	GTCAATCTGC	ATTGCGTAGT	CAGAACGCAA	GGCAAAAGCA	TCCCCTTTCA	1920
GGTCAGTATA	AAGTGACGGA	GGTGTTCCTG	GGATTGAGTA	AAGATCCCCT	TTATCATCAG	1980
CAAGCTGAGG	CAAGCTAGAC	AAGAGACTCC	ATGTATATGG	ATGGCGAGGG	TCATAGAAGA	2040
CTTCTCAAC	CGTTCATAC	TCAACGATTT	CTCCTGCATA	CATAACCGCT	ACCTTATCCG	2100
CAATACTTGC	CACCACACCA	AGGTCGTGGG	TAATAAAGAT	TGTTGTGAAA	TGATACTCGT	2160
TTTGTAAGA	TTTTAGCAA	TCAATAATCT	GAGCTTGAAT	AGTTACATCC	AAGGCAGTTG	2220
TTGGCTCATC	ACAGATCAAG	ACATCAGGTC	GGCAGGCAAG	GGCAATAGCA	ATAACGATAC	2280
GTTGACGCAT	TCCTCCAGAA	TATTGGAATG	GGTATTCAAT	AAAACGTCTA	TCTGCGTCTG	2340
GAATGCCAAC	CTTATTCATG	TAGTCAATGG	CCAATTCTTT	CGCTTCTTTA	GCTGTTTTTC	2400
CTTGGTGT	TACAATAACT	TCTGTAATCT	GACTACCAAT	TGTTTTAATG	GGGTCCAAAC	2460
TAGTCATTGG	GTCTGGAAG	ATAGTCGCAA	TCTTAGCACC	ACGAATTTGT	TCCAATCCT	2520
TGTGAGAAGA	TAAAGCTGTC	AAGTCCTGAC	CACGGTAGTC	AATACTACCT	TGGGCAATAC	2580
GACCATTTTC	TTGAGCATA	CCTGTGAAGG	TCTTGTCAA	AACAGATTTA	CCTGATCCTG	2640
ACTCACCTAC	CAAGGCTAAT	ACTTCTCCTT	CGACTAGTTC	AAGGGAAACG	CCGCGAATGG	2700
CTGTCAATAC	TTTGTACGA	ACGTCAAATT	CCACGACAAT	ATCGCGAGCA	GTCAAAATTA	2760
CATTTTTTTC	TTTTGTCAAT	TCTACTCCTA	TCTATGTGTA	CGTGGATCAC	TAGCATCCGC	2820



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TAAGTTTGA CCAACTACGA AAAGGGACAA GGATACCAAG ACAAGGGTTG TCAATGGAAT	2880
CCAGAACAAG TAAGCATTGG TTGTTACGTT TTGTGAATAA TCCGAAATCA AACGACCCAA	2940
ACTTGGCACT GTAATCGGTA ATCCAAGACC GAAGAAAGAC AAGAAGGCTT CGTATGAGAT	3000
AAAGCTTGA AGCATTTGAG TCATGGTTGT CACAATAACA GATACCAATT GAGGCATGAT	3060
ATTTTGGCA ACAATCTTCA AGGTTGGTGT TCCCAAAGTA CGTGACGCCA AGTTGTATTC	3120
CAAGTCACGA TAGCGCAAGA TTTGCACACG GATCATGAAG GCAATACCAA TCCATGTTGT	3180
TACGCTCATG GCAAAAATCA GATTCCAGAA TCCAGCTCCG ATTGAGTAAG TCAAGACAA	3240
AACAATCAAA AGAGGTGGGA TGTGTGAGAT GACGTTGTAA ACTTCCATCA TGACACGGTC	3300
AAGTATTTT GAAATACCCC AAATACCACC GACAAAAACA CCGATAACCA AGTTAATCAC	3360
TGTCGCAATC ACAGAAATGA GGATGGAGTT ACGAGCTCCG AACCAGACAC CGTCAAAGAG	3420
CGATTTACCG TTACTGTCAG TACCGAACCA ATGCTCCGCA TTTGGCTTGA TATAACGAAC	3480
ACTAAAGTCG TTTACCTTGC TGACATCATT GAAATCAAAC TTAGAAAACA TTGGGTAGAT	3540
GAACTTATC AAAATGATGG CTACCAAGAT TCCCAACATG ACTACAGTTG ATTTTCTCT	3600
CATAAATTGT TTAACACTG ATTTCCAGTA AGAATATGCT GGCGCATCAA TAGTTTCAGA	3660
GGCAAAATCG TCACGTTTGA CAACTGAAA TTTTCTTTA TCGATTGTAG ACATTATTTG	3720
CCTCCTTTCT CAGTCAATTT AATACGTGGG TCAATAATAG TCATCCAAAT ATCTCCCAA	3780
AGACGTGAGA AGATAGAAAT ACATGTAAAG ATGAAGACAA GACCAACGAC CATAGAGTTA	3840
TTAGATGCTT TTACAGAGTC AATCAACATT TTACCCATAC CTGGGAAGGC GAAGACTGTT	3900
TCAGTAAGGG TTGCACCACC GATAACCCCA ATAATGGCAG CAGGAATTCC TGAACCAGC	3960
GGAACCATGG CATTTTAAA GATGTGTTG TTTGAAATTT CTTTTTCAGA CAAACCTTTT	4020
GCACGAGCGA AACGAACAAA GTCTTGAGAT TGCAAGTCAA TCATGTAACG ACGAATCCAA	4080
ATGGCTGTAC CAGGAGCACC CAACAAACCA AGGATGACTG CTGGTAAAC GTAAGAACGC	4140
CAATCTCCAG CTCCAAGAT AGGGAATGAA TCTGGAAGGG CAATAGATGA TCCAATCAAT	4200
CGAACGATGT AAACCAAGGC AATCGTTGGA AGAGCAAGCA AGAAGGTCAA AGCCCCGTGT	4260
GAGAGGCTAT CAATCCAAGT GTTCTTGAAA CGAGCCATGG CTGAACCAAG TGGCACGGCA	4320
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GGATATTGGT AATTACTTTC AGTCGCTGTA TAAGGATCAT CTTTCCATA GCTAGCTACT	4440
TCACGAGACT CAGCCTGACT AGGTGACTTG TAGGTTCTTG AGTAAATATT TACAGAAGAC	4500
GTTTCTTAC CTGTTGGGAA CTGAACTTGG GCAGTTTGG TTTGTCCTTG ACCTTGAGTA	4560

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ATAACCTGAA GAACTGGTGT ATTAGCATAG GTTGGGTAAG AGTCACCTAA ATTCAAGTTC	4620
ACAAAGTTTT GATGAACAAA TGGGAACTGA CTGTTAAAGT ACAAGAGATA TTTATGTTTA	4680
GTTCTGAAC CGACCAATGA CCATCCGATA GCTGGATCAT TTTCAAAACG AAGGTAGCGT	4740
TTCAAGTCTG GATTTTCAGG GTCTTGATT TTATTTGTAT GGTCAATGTC AATCAAGTTA	4800
GCATAGAAGT GAAAAACAG TTCAAAAATT GGAATTTTAC GAGTAGCATA GAATTGACCA	4860
CTTTCAGTAA ATTCTCCCAA AGTCCAACCA TGACCTAATT GATTGATGTA CTTTTCATAA	4920
ATAGCTTTAT TGGTCGCATT TGCTTCTACT GTTACAGAAG AATCCATGCT ACTTGCCTTT	4980
TCTTGCAACT CTTTAGTATC GTAATACTCA ATGTAGCCCA TACGCTCAA CACAGTATTT	5040
TCATAGTTAT CACGTTTATC AGCCGTTGTC GCAATTTTAT TATAGTTAGG ATCCTGCTTG	5100
AAAATCAATT TTCGAGGAAC CAAGGTATAG ATAATCGTGT AGGTCAAAGT CGTTACTAAG	5160
AAAATCGAAA CCAATGACCG CAAAACACGC ATAAAAATAT ATTTTTCAT ATTATTTCT	5220
TTAAAAATCC CAAAAGAACC TTCTCCTCAT GGAGAGAAAG TTCTATTAGA AATTATTTAC	5280
TTACATGAC TTGCCAATTC TTTTGTAGCT TTCTCATTTG ATTCAGCTTT TTCTTTCAAC	5340
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TCCAGATGAA TAGGAACTG AACGCCGTCT GCTTCTAAAG CTTTCTTAGC TTTGCAAAC	6000
TCTGCCTTGG CCTTGTGAGC ATTGAATAAA CCATCCTGCC CATCAGCTAA ATTCACACCT	6060
TTCCACTCAT CACCATAAGC AGGAAGTTGA GCAGCGACTA AATCACCAAA GGTCTTCTCA	6120
CCAGCTGAAA CAAAGTCTGG TTTTACAAAT AAATTACGAA CTGCTAAAGC TGCTCCATCT	6180
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AAATCTTTGT TAAGCAATGC CTTCTTAGTA GCTACTTTCT CTGAATCTGT AGTTTTAGAA	6300
GTATAGTTGT AACTTTGGCG ATCAATATTC ACACCCAGAC CAGCAATCCC AGAGCCTGAT	6360

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TGTGTGTAAT AGATATTGTC CTTGTATTCT TCTGCAACCT TAGAATAGTT GGAGCTGGTA	6420
GGGTAAAGAC GGGCATAACT ATAAGCTCCA CTAGTGAAGT TACGCTCTAG CGACTCCTGA	6480
TCTGATCCAT CATAGTAAGC TAGATTGATA GTATCTAGGT GGACATTTTC TTTATCCCAA	6540
TATTGCTCAT TTTTACAAA CTCTACAGAA GATTTTGCAG TCAACCCTTT CAACAAGAAT	6600
GGACCATTAT AAAGCAAGGA TGTCGGATCT GTTGGTTTAG CAAAATCGCT TCCTTTTGAT	6660
GTTTCGAATT-CTTCATTGAG AGGCCAGAAA ATAGAATAGG TCAACTTAGA GTTCAGAAC	6720
GGTTCAGGCT GGTTCAAAGT GTATTGTAAC GTATAATCAT CAACCGCCTT GACACCAACT	6780
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ATCTTATAAG TGTAGGTCAA ACCATCCTTA GAGACTTCCC AATCCTCTGC AATGCGAGGA	7020
GCAAGATTAC CGTAATTATC GTTAGTGAAT AAACCATCAA TCCCATTGA AGTCACTACT	7080
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GACTTACACC TCAGATGCAC GACATGCCCA TCGTATAAAA AATCTCCTAC CCAAGGTAGA	7920
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GGAATACTGC ACATACTAG CAAGAAAATA AAGCCTGACT GAATCCAGAA GAGAGCCAAG	8040
TCAAAAATTC CGTGCACAGC AACCCTGTA AGGAAAGATA GATAAAGGCC GATAATCGGA	8100

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CGTTTCCCCG ACTCCTGACT CATATCCATC ATCAAGCGAA CAGGAGCAAC AGAAGACAAA	8160
ACTAATAAAA TAGTCCCCAC AATTCCGTAA CTCAGAATCG TATCAATATA AAGACTGTGG	8220
GCATGTTTCAT GATAAGGAGC ATGTATCCGA GGATAAGAGT TCATATAGGT CAATGGCCCT	8280
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TCTTCCATAG AAGAGTCTAA AGTACCCATT CGAACTCCCA AATCACTAGA AAAGAGGAAA	8400
CTCAAACCAA TCGCGAAGAC CCAATACTA AGCCAAAAGG CCTTCCAGTT TTTAATAGTC	8460
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CATAGTAATC ATGGTCTGCT ATTTTAAACT GAATCGAATA GTGTTTCATGA ATCTCAGGTA	10020
AAAGCTCTGT CCCATACTCA GCAGCGATAT CTCGAACTTT GTCCAATAAA TCCCAAATAT	10080
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TAGTTACTTC TTTGGTCACA TCAAGATCAA TCTGCTCCTC ACCAAAGGTA TTCCACAAAT	10260
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CCAAGTCTCA TATGATCTGG CTTCATAAAT AAAATTCATT TTAAATCTCT ATTTATCATC	10800
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CATAGGTCAA GTAGAGCAAG ATCAAACCA AGGTATTAGC CAAACCGACT TTAATCATCA	11520
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TATACATGAT GGTAAGGCT TTTCTTTTAC TCATATTGCG AGCGATGGAG TAGGCTGCCA	11640

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GTGTGGCAT TGTGGGACC ACCACCGGTC ATGGCAAAGA CTTGGTCAAA GGCAGTCAGC	12120
CCACCTTTTA GGGCTAGGAT AAAGACCATA GAGACACTTG GTAGCAAGTA AGGCAATTCA	12180
ATGTTCCAGA AAACCTTGCTT GCTAGTCGCA CCATCAATCC TTGCTGCCTC TGTAATCTCA	12240
GTTGGAATAG ATTGCAAACC AGCTAGGAAG ATGATGATGG GCATAGCCAC CCCTTGCCAA	12300
AGAAGGACAA AGACAGCCGC AAAGATTGCT CCCCACTTAG TCCCTAAAAG ACTGGTTTGG	12360
AAAAATTCAA TATGAAGGCG ATTTCCAATC GCTGGAAGAC CGTAGTTGAA GACTTGCTTG	12420
AAGATCAAAG CCACTGTCAA ACCAGATAAA ACAGCTGGGA AGAAGAACCA AGCACGGAAG	12480
AAGGTTTGGC CTTTGATTTT AGAATTCAAG ACACGCGCAA TGAAGATCCC GAGTGCAATC	12540
TCACCAACCA CCATGGCAAT CGCAATGATT GCGGTAAAGC CAATCGCATT CATGAATTTT	12600
GGATCCATGA AGAGGAGCTT AAAGTTGTTT AAGCCAACAA ATTTGTAGTT ATAAGTCAAT	12660
CCTGTCCAGT TGGTAAAACT GTAAAAGGCT CCTTGAAACA TCGGCACATA GAAGAAAATT	12720
GCTTGTAACA AGAGGGGGAT GACCACAAAA GCCCATGCCC AATATTTTTG TAATACTTTT	12780
TTCATAGTCT CTCTACTCCT AATCCACATC CGCTTTCATC GGGTTAAAGA AGGCATTCAA	12840
ATCATTGACC ATGCCTTGTT TATCACCGGT CAAGACATAG TTCATGGTCA AGGTATGGAA	12900
GTCTGCTTCA CTGGTCCAGT ATTGTTGCAA CCAGACCAAG TGACGATCCG TAAAGGCATA	12960
TTCGGTCATA CCAGCAAGCG GTGAATCTTC TCCTGCTTGT TTGACCCCTT CGATCGCTGT	13020
TGGAGATCCG TCCACATCGT AGTATTTTTG CATGACTTCT GGACGGGTCA TATATTCCAC	13080
AAAGGCATTG GCTTCTTTTG GATGTTTGGT GGTGGCTGAG ATAGACCATG CCAAGTCTCC	13140
CGCACCAACG GTTAAGCTTT GTCTTTTTTC TTTTCCTGGA ATCATGAAGG TCCCAATCTT	13200
AAAGTTCGGT TTTTGTTTCA TAATCGCTGT GATCGCCCAA GACCCATTGT GTGTCATGAG	13260
GACATCCCA CGTGCGAAGG CTCCGATAAC ATCGGTATAG CCAGCACCTT CCCAGTTCTT	13320
TTGCTTAGAT CCATTGATGC GAAGGATGTC CATGACCTTG ATATCATCTT TCATAATCGG	13380
ATCCGACAAT TTAATGGCAT TTGGTTGAGA ATAACGAAGG TATTGATTTG CTTCTTTTCC	13440

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TCCACCTGTT	GCTGTCGCAA	AGGCTAATTG	ATTGTAACCA	TTGAGTGTCC	AAGCATCTGC	13500
ACCTGCAATT	CCAAATGGTG	TTTGTCTT	AGCAACGATA	TCTTTGACTA	ACTGTTCAAA	13560
TTTCATCCCAG	GTTCAGGAA	CCTTCAAGCC	CAGTTCCTCG	AATTTATCTT	TGTTGTAGTA	13620
AATTCCATAA	GCATTAGCTG	TAAAAGGAAC	GTGTAAACT	TTTTCGTTTA	CAGCATATTT	13680
TTCAGCGTAG	CCATTTTCA	CGCGTTTCAG	GTAGTCTTTG	TTGCTCAAAT	CTTCAAAAAC	13740
ACCTGCTTTT	GCCCATTCTT	GCAGTTCGAT	GGACTGTGGG	TAAATATTGA	CCACATCAGG	13800
CACATCTCCT	GCGAGAACGC	GTGTCTTCAA	TACTTCACCA	GCATTTGGTA	CATTGACGAC	13860
TTTGACCTTG	ATCTTAGGGT	TTTCCTTCTC	AAAATCACGA	GTGATTTCTT	CCAAGGTTTT	13920
GGTCATTTCT	TTTTTCTGGT	TGAAATACTC	GATGGTCACT	GTGCCATCCG	CAGATTTACC	13980
ATAGTTGGAG	CAAGCGCCGA	GCCCAAACAA	AGCTAAACCT	GTAGTTGCAA	GAAGTCCGAT	14040
TTTTTTATAC	CATTCCATTA	GAAAGCCTCC	TTTATAAATT	TATACACCCT	TATTGAACTG	14100
CACCCCAAAA	GTTAGACAGA	ATAAATCTAA	CTTTTGGGGT	CAGTACATAT	CATAGTTTTC	14160
TAAAAATATA	CTGTCTACTC	AAAAAATCTC	CTTGGGATAA	GATAACAGTT	AAGCCCGCAT	14220
ACATTAGTTC	TGCACCTGAG	TAAACTTCGC	CATTTTCCTG	TAATTTATAT	AGTCCCTCTT	14280
CATCCAAATC	TTTTAATTTT	AAAGTTGTTT	CCATGGTCTC	TACAACAGAT	AAAACGCGAA	14340
CGTAGGTTAC	AATCGTTTGA	TTCCGTAAT	TAAATTGTAC	AGCTGCTTCA	TTGGATACAG	14400
TATCAGGATT	AATTAGTCTA	TACTGCTGTC	CTAACTGAAC	TACTGGTCGT	AATTCTTTAT	14460
ACAAGTTCAC	CTGATTAGCA	ATCGTAGCTT	TCTCTTCATC	TGATAAATTT	GTCAAATCAA	14520
GTTCATAGCC	CAAATTTCCC	ATCATTGCTA	CAAGGCCACG	TGTTTCTAAT	GGTGTCAATC	14580
GTCCCATCTG	ATGATTCCGT	ACTGCTGACA	CATGAGCCCC	CATAGAAATG	GTTGGATAGA	14640
GATAGGATGA	ACCGTATTGA	ATTGGTAAAC	GTGCAATGGC	ATCAGTATTA	TCACTAGCCC	14700
AGACTTGTGG	GAAATAGCGC	ATCATACCAA	GATCATTTTCG	TCCACCACCA	CCAGAGCAGG	14760
ACTCAAAGAG	AATATGGCTG	TGCTTCTCTG	TCAGATAAGA	AACGAGTTCA	TAAAGCCCCA	14820
GCATGTACTG	ATGAGATTGC	ATCTGTGTCT	CTAGATAAGT	TAATCCATTC	CCTAGCTTAG	14880
TGATATTGCG	GTTTCATATCC	CATTTAATGT	AATCAATATC	ATGATAAAAT	AGGAGTTGAT	14940
CTAAGACACT	TTTCAAGTAT	TCTACTACCT	GAGGATTGGC	AAGATTAAGT	ACTAATTGAT	15000
TCCGAGAATA	AGTATGCTCA	TAGCCAGGAA	CCTGAATAGC	CCAGTCAGGA	TGTTGACGAT	15060
ACAAATCACT	ATCTACAGAA	ATCATTTTCGG	GTTCTAACCA	AAGTCCAAAC	TGCAAACCTC	15120
TTTCATGGAT	AGCTGAAATC	AGACTTTCTA	GACTTCCACC	CAGTTTTTCC	TCATTAACAA	15180

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CCCAATCACC TAAAGCACGA TTATCATCAA AACGATTGCC AAACCAACCA TCATCTAATA	15240
CAAAAAGTTC AATGCCAACT TTCTTAGCTT CATCTGCTAA CTCTAACAGT TTTTCTCTCT	15300
GAAAGTCAAA GTAAGTAGCT TCCCAGTTAT TGATTAGAAT TGGACGTTCT TTTTtagaaa	15360
ATTCACCTAG CATAATGTGC TTCAGTACAA AATTCTGACT TTCATGACTA ATACCAGTTA	15420
ATCCCTGATC TGAATGAGTC ACTAAAGCTA CCGGTGTTTC AAAGTATTCC TCAGGAGCTA	15480
ACTTCCAAGA AAAGTTTTCT GGATTAATGC CAATAGCCAC CCGAACTTCA TTCAATTGAT	15540
TTTTTTGAAC AAAAGCTTCA AAGTTGCCAC TATACATTAG TTGAATAGCA AACACATTCC	15600
CAGCATCCTC TGTGACTCCT TGTTCGCATA GTAGAAGAGC TGGTGTGTTGA GCATGACCAG	15660
AAGCACCTCG GTTTGAACTA ATCGAAAAGA TTCCTTGTTT TACCTGTTGA CGTCTAACAG	15720
TCTTTTCACG AGCATAAGCA CCCTGCAGAG TTACTATTTT GTAATCTGCA GCTGGAAAAT	15780
CAGCCATAAA AGAAAAATCT TTATGGATGA CAACTTCCTG ATTACTATTA TTATCTAATT	15840
TACTGTAGCT AGCAATAGTC GCATCATTAT TAAAGTAGT ATAATACAAA GTCAGACTAA	15900
GTTGAGCCTT AGAATCTTCT AACATTAAGA CAAGAGTCTC TGTATCGTCC ATGCTATGTG	15960
GAGAAGGTAA GCCCTGTGGA CCATTCTGAC CTTTTAAAAT CTTTGCTTCT ACAAATCGAA	16020
AGTCTGTTAC TTCAGTTACA CTATGCTGAA CCTGTATGGT TGGTTTCCTA AAATCTCCTA	16080
AGCCATGTTG TCCAAAAATC TGTCGCTGAG TATCTAAACT AAAGGTTCTGA TTAGTAGCCG	16140
TTGGATTTCC TGAAAAGGCA TGGTCTCGTT CATAAACACT ATTGGAACCT TTATAGTTCT	16200
TAATAGTCTT TCCTAAATGT TTCAAAAGTA AGTAGCCATT TCGATTTTCA ATAATCAAAC	16260
TTAGATTTTT ACTCTCAACA TAAATAGAT TATTCTCTAT CCTAACTCCC ATTTACTTCA	16320
CCTCATCACT TTATTGATTA TATTTTATCA CCTGAAATCG CTTTCCAAAA TAGAAAAATG	16380
TCTCAAGAAT ATGGTAAAT GTTAGGTAGG AGGTAGCACA TGTTAGTTTT TTCAGAATAC	16440
CAGACTGGAA CAATCGACCT TGCCCTAAGC TTTTATGGAT ATGAGGAATG CACACCTAAT	16500
TACTCTTTTG GTCCAGCCAT TCGTGATACA TACGTTCTAC ATTACATTAC TAAAGGACAA	16560
GGAAAATTTT ATTACAAGGG TAAAATTGTT GATTTAAAAG AAGGAGATTT CTTTCTATTA	16620
AAACCAGAGG AACTAACCTT TTATCAAGCA GATAGTAAAG AACCTTGGGC CTACTACTGG	16680
TTAGGAATCA CTGGAGGGAA AGCCCTGAT TATTTTGCTC TTTCCCAAAT TTCTGATCAA	16740
TCCTATCTCA TCCAATCTGA AACTTGTCAT ACCCAGACTA CTGCAAACT CATCTCAGAC	16800
ATTGTCCGCT TCGCTCAGAT TACAAAATCA AGTGAATTAG CTCAACTCCA TATCATGGGA	16860
CAACTTCATG AACTGATGTT TCATCTGGGA ACTATTGCTC CCAATCAGAA AAAAAAGAAT	16920
ATTTTCATCAA CCCACCAACT CTATCTTGAA TGCAAACGAT TAATTGATAG CCACTATCCT	16980



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CAATCACTTA CAATTCAAGA TTTAGCAAAA GAACTATCCG TTCACAGAAG CTACTTATCA	17040
AGCGTATTCA AAGAATTTAA TACCTTATCA CCCAAAGAAT ACCTACTCTA CGTTCGAATG	17100
CACCGAGCTA GACAACTTCT CGAAAATACC CAAGAGTCCA TCAAGGTAAT TGCATACTCG	17160
GTAGGTTTTT CAGATCCACT CCATTTTTCG AAAGCTTATA AACAACTT TAATCAGACT	17220
CCAAGTCATA CAAGAAAAGA ATACTCTCAA TACCAACTAG TAAGAAAGGC AACATTATGA	17280
AATCCTACCA AGCTGTCTAC CAAATCCTAT CTAAAGAAAC CGACTATATC AGCGGAGAAA	17340
AAATCGCAGA AAAACTATCC CTAAGCCGAA CAGCAATTTG GAAAGCCATC AAGCGACTAG	17400
AACAAGAAGG CATTGAAATT GATAGTATCA AAAATAGAGG ATATAAACTG ATGAATGGTG	17460
ACCTTATTCT TCCAGAGATT CTAGAAGAAA ATCTTCCAAT TAAAGTCAGC TTTAAACCCG	17520
AAACAAAATC AACACAACTA GATGCAAAAG AAGCAATTGA TTTAGGCCAT GAAGCAAATA	17580
CCCTCTATCT AGCTTCCTAT CAAACAGCAG GCCGAGGCCG TTTTCAACGT TCCTTCTACT	17640
CACCACAAGG TGGTATTTAT ATGACACTCC ATCTTAAACC AAATCTCCCC TATGACAAAT	17700
TACCATCCTA CAACTACTT GTAGCTGGAG CTGTCTACAA AGCCATTAAG AACCTAACTT	17760
TAATAGATGT CGACATAAAA TGGGTCAATG ATATCTATCT AAACAATCAT AAAATTGGAG	17820
GAATCCTTAC TGAAGCAATG ACCTCTGTAG AAAGTGGCTT AGTCACAGAT ATCATTATTG	17880
GAGTAGGTAT CAATTTCACT ATTAAAGACT TCCCTCAGGA ATTAAAAGAA AAAGCTGCCA	17940
GCTTATTTAA AGCTACAGCT CCTATAACAA GGAATGAATT GATCATAGAA ATCTGGCGTG	18000
CTTCTTCGA AACACCAGCA GAAGAGCTAT TATACCTATA CAAAAACAG TCATTCAATC	18060
TAGGAAAAGA AGTCACTTTC AACTAGAGC AAAAAGACTA CAAGGGACTT GCTAAAGACA	18120
TCTCAGAAAA TGGAAAACCTT TTAGTTCAAT GTGATAACGG AAAAGAAATC TGGCTAAATA	18180
GTGGCGAAAT TTCTCTCAAT AGTTGGAAGT AAAATAACAC AATTATAATA TAAACGATAT	18240
AAAAATAACT TCAGATTAGT AATTCAATTA AGTTTTACGG ATCTGAAGTT TTATTGGCTC	18300
TAAAAATAAA AAAGAGAGTT ACAGACTCTC ATTAAAACGG AGAATAAGGG ATTCTGAACCC	18360
TTGCGCCAGT TACCCGACCT AACGATTTAG CAAACCGTCC TCTTCAGCCT CTTGAGTAAT	18420
TCTCCAATTA ATGGGCACGA GTGGACTCGA ACCACCGACC TCACGCTTAT CAGGCGTGCG	18480
CTCTAACCAC CTGAGCTACG CGCCCAAGTT AAAAAACTTG GTAATTTGAA CAAAGTTCAA	18540
AGCGGGTGAC GAGAATCGAA CTCGCGACAA CAGCTTGGAA GGCTGTAGTT TTACCACTAA	18600
ACTACACCCG CATAAATACT ATCAATAAAA TGGCGCGAGA CGGAATCGAA CCGCCGACAC	18660
ATGGAGCTTC AATCCATTGC TCTACCAACT GAGCTACCGA GCCTTATTGC GGGAGCAGGA	18720

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TTTGAACCTA CGACCTTCGG GTTATGAGCC CGACGAGCTA CCGAGCTGCT CCATCCCGCG	18780
TTAATAATAT AAAAGGAGGA TGTGGGATTC GAACCCACGC ACGCTTTTAC ACGCCTGACG	18840
GTTTTCAAGA CCGTTCCCTT CAGCCGGACT TGGGTAATCC TCCAATATTC AAATGGACCT	18900
TGTAGGACTT GAACCTACGA CCACTCGGTT ATGAGCCGAG AGCTCTAACC AGCTGAGCTA	18960
AAGGTCCGAC AAGATCATT TAGCGGCGAA GGGGATCGAA CCCCCGACCT CCCGGGTATG	19020
AACCGGACGC TCTAGCCAGC TGAGCTACAC CGCCATGAAT CGGGAAGACA GGATTGGAAC	19080
CTGCGACACC TTGGTCCCAA ACCAAGTACT CTACCAAGCT GAGCTACTTC CCGAGTTAAA	19140
TAGAAAAATG CACCCTAGAG GAGTCCAACC TCTAACCGCC TGATTCTAG TCAGGTACTC	19200
TATCCAGTTG AGCTAAGGGT GCTCCATATT ATGCCGAGGA CCGGAATCGA ACCGGTACGA	19260
TCGTTACCAA TCGCAGGATT TTAAGTCTTG TCGCTCTGCC AGTTCCGCCA CCCCCGGCCTC	19320
TCTAAGCGAA CGACGGGATT CGAACCCGCG ACCCCCACCT TGGCAAGGTG GTGTTCTACC	19380
ACTGAACTAC GTTCGCACTG TTTTCTTCTA TCTAAAAATG CCGGCTACAT GACTTGAACA	19440
CGCGACCCTC TGATTACAAA TCAGATGCTC TACCAACTGA GCTAAGCCGG CTCATTTGTT	19500
ATATCTTAAT GCGGGTTAAG GGACTTGAAC CCCCACGCCG TTAAGCGCCA GATCCTAAAT	19560
CTGGTGCGTC TGCCAATTCC GCCAAACCCG CATATATGAC CCGTACTGGG CTCGAACCAG	19620
TGACCCATTG ATTAAAAGTC AATTGCTCTA CCAACTGAGC TAACGAGTCT AAAATAACTT	19680
GCGTTACCTT AAACGGTCCG ACGGAATCGA CCCGGTAC	19718

## (2) INFORMATION FOR SEQ ID NO: 100:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4117 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 100:

CCGTGGAAAA GTCTGGATAG TGAATGGTCT TCACACAATG ACCTGAAAGA AGCCTGAGAA	60
TAATTATGGA GAGTAGCATT CTGAGAGGTG TTACGAGAAC CATATGACAG AGCTGTTTGA	120
AGAGGGAATA TTGAGGAGAA AAATCCTGAG CCTACCAGTT GGAGTTGGAA AGAGCTGACT	180
GTTAGATCAT GGTTTATTAT CCACAACCTG TGGATAACTT TGTGAATAAG AGAAGTTGCT	240
AAAGAAGGAG ATATATAACG ATGAAGAAAA TCAAACCGCA TGGACCGTTA CCAAGTCAGA	300
CTCAGCTAGC TTATCTGGGA GATGAACTAG CAGCTTTTAT CCACTTCGGT CCTAATACCT	360
TTTATGACCA AGAATGGGGG ACTGGACAGG AGGATCCTGA GCGCTTTAAC CCGAGTCAGT	420

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TGGATGCGCG TGAGTGGGTT CGTGTGCTCA AGGAAACGGG CTTCAAAAAG TTGATTTTGG	480
TGGTCAAGCA CCACGATGGC TTTGTCTTTT ATCCGACAGC TCACACAGAT TATTCGGTTA	540
AGGTCACTCC TTGGAGGAGA GGAAAGGGCG ACTTGCTCCT TGAAGTATCC CAAGCTGCCA	600
CAGAGTTTGA TATGGATATG GGGGTCTACC TGTCAACGTG GGATGCCCCAT AGTCCCCCTC	660
ATCATGTGGA CCGAGAAGCG GACTACAATG CCTATTATCT GGCTCAGTTG AAGGAAATCT	720
TATCAAAATCC TAACTATGGG AATGCTGGTA AGTTCGCTGA GGTTTGGATG GATGGTGCCA	780
GAGGAGAGGG CGCGCAAAAG GTTAATTATG AATTTGAAAA ATGGTTTGAA ACCATTCGTG	840
ACCTGCAGGG CGATTGCTTG ATTTTTTCAA CAGAAGGCAC CAGTATCCGC TGGATTGGCA	900
ATGAACGAGG GTATGCAGGT GATCCACTGT GGCAAAAGGT GAATCCTGAT AAAGTAGGAA	960
CAGAAGCAGA GCTGAACTAT CTTCAACAGC GGGATCCCTC GGGCACGATT TTTTCAATCG	1020
GAGAGGCAGA TGTTCCTATC CGTCCAGGCT GGTTCCTACCA TGAGGATCAG GATCCTAAGT	1080
CTCTCGAGGA GTTGGTCGAA ATCTACTTTC ACTCAGTAGG GCGAGGAACT CCACTCTTGC	1140
TTAATATTCC GCCGAATCAA GCTGGGCTCT TTGATGCAAA GGATATTGAA CGACTTTATG	1200
AATTTGCGAC CTATCGCAAT GAGCTCTATA AAGAAGATTT GGCTCTGGGA GCTGAGGTAT	1260
CTGGTCCAGC TCTTTCGCA GACTTTGCTT GTCGCCATTT GACAGACGGC CTTGAGACCA	1320
GCTCTTGGGC AAGCGATGCA GACTTGCCCA TCCAGTTAGA ACTCGACTTA GGTTCCTCTA	1380
AAACTTTTGA TGTAATTGAG TTAAGAGAAG ATTTGAAGCT AGGGCAACGA ATCGCTGCTT	1440
TTCATGTGCA AGTAGAGGTG GATGGTGTCT GGCAGGAGTT TGGTTCGGGT CATACTGTTG	1500
GTTACAAACG TCTCTTACGA GGAGCAGTTG TTGAGGCACA GAAGATACGT GTAGTCATTA	1560
CAGAATCACA GGCTTTGCCT TTGTTGACCA AGATTTCCCT TTATAAACT CCTGGATTAT	1620
CAAAAAAAGA AGTTGTTTCA GAACTAGCAT TTGCAGAAAA AAGCCTAGCT GTGGCAAAGG	1680
GAGAAAATGC CTATTTTACA GTTAAGCGCA GAGAATGTAG TGCTCCTTTA GAAGCTAAGA	1740
TTTCGATTCA ACCGGGGACA GGTGTCCATG GTGTGCGCTA TCAGGATGAG ATTCAAGTCC	1800
TTGCGTTTCA AACTGGTGAG ACTGAAAAAA GTCTGACGCT ACCAACCTTG TATTTGCGAG	1860
GAGATAAAAC CTTGGATTTC TATCTGAACC TAACGGTGA TGCTCAGCTT GTGGATCAAC	1920
TTCAAGTCCA AGTTTCATAA AAGAAGAACC TTTGCGCGAT GCAAAGGTTT TTTTGGTTAT	1980
TAGTGACTTG GTAACAGCT GAGGGTGAAA GTTAGTTGTT CAGCTTTTAA GAGGTCTTGG	2040
TGTTGAATAG TTGATACGAG TGTMTGTCC AGTCGGCATT CTTTGACAAA GTTAAAATGG	2100
TTGTGGTTTT GTTTAGTATG GATATCCAGC CATTTATCTT CTTTAGCGAG GTAGACTCGT	2160

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AGATGGTCAA AGAGAGGGAT TCCGAGGTCA TAGCTTGGTT TTCCTGGACA GGTTGGATAA	2220
AATCCGAGAG CTGACCAGAT GTACCAAGCA GAGAGACTAC CATGTCTTTC ATCTCCAGGA	2280
TAGGCTTCCC AACTTGGGTG AAAAGCTTTC TGACGGAGCG TCTTGATAAG AAGGGCAGTG	2340
TAGTCAGGGT AATCGCTGTA ACGGAAGAGA TAAGGAATGT GGAAACTAGG CTGGTTGGAA	2400
ATGGCTATTT GTCCAAAAGG AGCAGTAGCC ATCTCGCTCA TTTCGTGAAT TTCGTAACCA	2460
TAGCCTGTTG TTCAAAGAG GGGAGCATCT TGACAGGCTT TCAAAAGATA GTTGCTAAAG	2520
GTTTCTTTTC CACCCATCAG TTGGATTAAG CCAGGGATGT CGTGAGAAC GCCTAAAGTA	2580
GCTTGAATGG CAGAGCATTC AGCGTAGTCT CGCCCCAAC TATAAGGAGA GAAGTCAGGG	2640
TGAAAGTTTC CTTGATTGTC TCGTGCTCGC ATGTAACCTG TCTCAGCGTC AAATAGCTGG	2700
CGGTAATTTT GTGAAGCAGC CTTGTAGGTT TCAGCGATTT CTATGTTCTC TAGTTTTTTG	2760
GCACAGCTGG CGATACAAAA GTCACTATAG GCATAGTCTA GAGTATGGCT AACACTTTCG	2820
TGGTGGTCGG TAGAGAGGTA ACCTAGTTCT TGGTATTGGG CTAGTCCGTG GCGGCCATTG	2880
ATGCCGAGAG GGTCCGGCTTT GCTGGCTGTT TCGAGCATGG CTTGGAAGAG TTCTCCTTCT	2940
AGGTCGGGGG TCATGTCCTT GCAGGCGCTA TCTGCGATAA TACCGTCTAA AAGTGTAACCT	3000
GGCATCATAC CCCGTTTCATC TGGAGCCAGC CATTTTGGAA GGAAACCACT ATCGCGGTAG	3060
CTATTGAGGA AACCTTCTAA AAAGCGTTGA TAGTGCTCCG GTATGATAAG GGCAAAGAGG	3120
GGGAAGGTGG TGCGGAAGGT ATCCCAGAAA CCATTGTTGC TAAAGAGGAC ACCAGGCTTG	3180
ACAGTACCAG TAGCCAGATC CATGTGGATG GCTTGCCCTG ATTCATTAAAT CTCATAAAAA	3240
GTCTGTGGGA AGAGGAAGAG TCTGTAGAGG CAGTGGTCAA AGAAGGTTCG GTCAGCCTCT	3300
CCTGTCTCTA TAATGTCAAA ACGATGGAGG AGATTTTCCC AATCCACTTG GGCACCTGAT	3360
TTACAGCTAT CAAAATCTTC TTGAGGTAGA TTGATTAGAG CTTGAGAAGG AGAGATGAAA	3420
GAAGTGGCTA GTTGCACTCTC GGTTTGACTA CTTGCTAAGT CAATTCGCCA GTCTCCAGCT	3480
TCTTGGCTGA TAGCAAGAAT ATCCGTGTTT ATTTGCAGGG CAGTGAACAT CGTTAGCGAA	3540
TTTTTGTTAG TTTCAGTTTT ACCTTCTTGT CGCAGGGCAA GAGTCCGCTT ATCTACTTGC	3600
TCTACTGTCA GTTCATCTGC TGCCTGAAGA TAGAGGGAGA GGGCTTTGCC TTGCTTTTGA	3660
TTCAAACGAA TAGAAGCACC ATAGCAAGTC GGTGTGAGCT GGGTTTCAAT CTGATAACGC	3720
AGAGAAAAGA GCTTCAAATA GTGAGGCTGG AAGCAAGCTT TATCTATATC ATAAGAAGAC	3780
TGGCGGTGAA AGAGGCTGTC TCCCCCAGT TGACTGGTGA CAGGTGTCAG AAGGAGCCAA	3840
GAGTAGTCCC CAATCCAAGG ACTGGGCTGG TGAGTTAATC GAATCCCCTG AAAGATAGGC	3900
AGATGTGGAT CAAAAACCA AGATCCATCC TGGTCACTGG TCTGGGGCAC AAAGTAATTC	3960

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ATCCCAAAAG GCACGCCTGT GTATGGCAGG GTATTTCCCC GAGAAAAGGC ATGCTTGTTC 4020  
GTAGTTCCAA AACGGGTATC GATGGTATCA AGTAGTGGTT TCATAGTCTT TCCTTTAGCT 4080  
GTTTTTCTAC ATTATATCAG TAATAGAGGG CCTTTAG 4117

(2) INFORMATION FOR SEQ ID NO: 101:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2727-base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 101:

CTGGTTCAAT TATTATTCAC TCTAAGTAGT CATATGTTCT TTATTTATGT GAGTTTTTAC 60  
CTTTTAAAGG ATCTTGTTAG ATGGGAGAAG GTTTTAAAG TGACAGATGA TAATACAAGA 120  
AAAGTTCGTT TATTAGTAGC CTTTTTTAGC ATTGTCATAG GCTACATCCT GAGTTCCTTC 180  
TTTATTAGCC TGTATCATTT GTGGCAACAA GCGCTTAGAG GATTATTATG AAATCAAGAG 240  
TAAAGGAAAC GAGTATGGAT AAAATTGTGG TTCAAGGTGG CGATAATCGT CTGGTAGGAA 300  
GCGTGACGAT CGAGGGAGCA AAAAATGCAG TCTTACCCTT GTTGGCAGCG ACTATTCTAG 360  
CAAGTGAAGG AAAGACCGTC TTGCAGAATG TTCCGATTTT GTCGGATGTC TTTATTATGA 420  
ATCAGGTAGT TGGTGGTTTG AATGCCAAGG TTGACTTTGA TGAGGAAGCT CATCTGTCA 480  
AGGTGGATGC TACTGGCGAC ATCACTGAGG AAGCCCCCTA CAAGTATGTC AGCAAGATGC 540  
GCGCTCCAT CGTTGTATTA GGGCCAATCC TTGCCCGTGT GGGTCATGCC AAGGTATCCA 600  
TGCCAGGTGG TTGTACGATT GGTAGCCGTC CTATTGATCT TCATTTGAAA GGTCTGGAAG 660  
CTATGGGGGT TAAGATTAGT CAGACAGCTG GTTACATCGA AGCCAAGGCA GAACGCTTGC 720  
ATGGTGCTCA TATCTATATG GACTTTCCAA GTGTTGGTGC AACGCAGAAC TTGATGATGG 780  
CAGCGACTCT GGCTGATGGG GTGACAGTGA TTGAGAATGC TGCGCGTGAG CCTGAGATTG 840  
TTGACTTAGC CATTCTCCTT AATGAAATGG GAGCCAAAGT CAAAGGTGCT GGTACAGAGA 900  
CTATAACCAT TACTGGTGTT GAGAACTTC ATGGTACGAC TCACAATGTA GTCCAAGACC 960  
GTATCGAAGC AGGAACCTTT ATGGTAGCTG CTGCCATGAC TGGTGGTGAT GTCTTGATTC 1020  
GAGACGCTGT CTGGGAGCAC AACCGTCCCT TGATTGCCAA GTTACTTGAA ATGGGTGTTG 1080  
AAGTAATTGA AGAAGACGAA GGAATTCTGT TTCGTTCTCA ACTAGAAAAT CTAAAAGCTG 1140  
TTCATGTGAA AACCTTGCCC CACCCAGGAT TTCCAACAGA TATGCAGGCT CAATTTACAG 1200

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CCTTGATGAC AGTTGCAAAA GGCGAATCAA CCATGGTGGG GACAGTTTTC GAAAATCGTT	1260
TCCAACACCT AGAAGAGATG CGCCGCATGG GCTTGCATTG TGAGATTATC CGTGATACAG	1320
CTCGTATTGT TGGTGGACAG CCTTTGCAGG GAGCAGAAGT TCTTTCAACT GACCTTCGTG	1380
CCAGTGGGGC CTTGATTTTG ACAGGTTTGG TAGCACAGGG AGAAACTGTG GTCGGTAAAT	1440
TGGTTCACCT GGATAGAGGT TACTACGGTT TCCATGAGAA GTTGGCGCAG CTAGGTGCTA	1500
AGATTCAGCG GATTGAGGCA AGTGATGAAG ATGAATAAGA AATCAAGCTA CGTAGTCAAG	1560
CGTTTACTTT TAGTCATCAT AGTACTGATT TTAGGTACTC TGGCTCTAGG AATCGGTTTA	1620
ATGGTAGGTT ATGGAATCTT GGGCAAGGCT CAAGATCCAT GGGCTATCCT GTCTCCAGCA	1680
AAATGGCAGG AATTGATTCA TAAATTTACA GGAAATTAGG CTGGAGAACC AGCCTTTTTTC	1740
TAAAGATAAG GAGAAATATG AACAAAAAAA CAAGACAGAC ACTAATCGGA CTGCTAGTGT	1800
TATTGCTTTT GTCTACAGGG AGCTATTATA TCAAGCAGAT GCCGTCGGCA CCTAATAGTC	1860
CCAAAACCAA TCTTAGTCAG AAAAAACAAG CGTCTGAAGC TCCTAGTCAA GCATTGGCAG	1920
AGAGTGCTTT AACAGACGCA GTCAAGAGTC AAATAAAGGG GAGTCTGGAG TGGAAATGGCT	1980
CAGGTGCTTT TATCGTCAAT GGTAATAAAA CAAATCTAGA TGCCAAGGTT TCAAGTAAGC	2040
CCTACGCTGA CAATAAAACA AAGACAGTGG GCAAGGAAAC TGTTCCAACC GTAGCTAATG	2100
CCCTCTTGTC TAAGGCCACT CGTCAGTACA AGAATCGTAA AGAAACTGGG AATGGTTCAA	2160
CTTCTTGGAC TCCTCCAGGT TGGCATCAGG TCAAGAATCT AAAGGGCTCT TATACCCATG	2220
CAGTCGATAG AGGTCATTG TTAGGCTATG CCTTAATCGG TGTTTGGAT GGTTTTGATG	2280
CCTCAACAAG CAATCCTAAA AACATTGCTG TTCAGACAGC CTGGGCAAAT CAGGCACAAG	2340
CCGAGTATTC GACTGGTCAA AACTACTATG AAAGCAAGGT GCGTAAAGCC TTGGACCAAA	2400
ACAAGCGTGT CCGTTACCGT GTAACCCCTT ACTACGCTTC AAACGAGGAT TTAGTTCCTT	2460
CAGCTTCACA GATTGAAGCC AAGTCTTCGG ATGGAGAATT GGAATTCAAT GTTCTAGTTC	2520
CCAATGTTCA AAAGGGACTT CAACTGGATT ACCGAACTGG AGAAGTAACT GTAACCTAGT	2580
AAAAGATACG CCTACACTCC TATGTCACTT ATGGATGTAG GAGTTCCTTT TACTAGTTTA	2640
AGCAGGACTA AGACAGGTAC TAAGACAAAA TAGCAACTTC TAAACTAAC TTCCAGTTTT	2700
GGGAGAGAGA TGAAGTTAC TTTGAGA	2727

(2) INFORMATION FOR SEQ ID NO: 102:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 5717 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 102:

TTTTTTGTAG ATTTAAGTGG GGTGCAATTC CTAaaaaata AAAACAATT TTTGAAAATT	60
ATGTTAGCAG GAATTGCTTC AAATTCGATT TTATCACTTA CAGGTTTACT TGTTTTATTG	120
TTACATCGT ATAAATTGCT TGGACTCTTA TTTTTTATCA TTAAGTTAGG TATGATTTTT	180
ATTAATTCAA TTCCTTTTTT TCAGTATGAT AGTGGTATTA TTTTAAGATA CTTGAATTCT	240
AACAATAATA ACTTGAATTT TCAATATATA GTTCAACTTT TAATAGCATT TGTTATTATT	300
TATTTTCCTT TGAGTCAACT ATTACAGTTT TTGACACCCA ATATTATTGT TCGTAGTATA	360
GGAGGGGTGG TTGTTTCTAT ACTGCTTCT ATATTATATA TGATAGGAAG GACGAAATAT	420
GTCTACGTA AATAGTTATG TTTTGTCTTA TAAAAAGAA GGTATAATGT ATTTACGTGG	480
TGGAGTATG CGGAAATAG CTATAGAACC TCAATTTCC CAAGAATTTA TCAACGATCT	540
ATTTAATAGT TGTAAGGAAC TATTAGAGAT AGAAGAAGTA TTAGGCAGTA AACTAACATT	600
TGAACTATAA ATGAACAAAT TTTAATTTCC GATGAGATAG ATATTGATAG TAGATATTCT	660
AGAACTAAAG GTTACTATTC GTTATTTTAT AATGAAGAGT ATAATAAAAT ACAGAATAAA	720
ACAGTATTAG TATTAGGAGC AGGAGTCTTA GGATGTTATA TATCTCTAAG TCTAAGTATG	780
TATGGAGTGA GGAACTTAT TGTGCTGAT TACGATATAA TAGAACCATC AAATTTAAAT	840
AGGCAATTC TTTATACAGA GTCGGATGTT GGTAAGGAGA AGATTAATGT TCTTCTGAA	900
AAAATACACA AGTATAATTC AGATGTTTAC GTAGTACCTA TTTCTATTAA AGTTTCTTCA	960
GTAGAAGAAT TAGAAAAAT TGTGCGGAA TATGGGACTA TAGATTTTAT CTTAAAGCA	1020
ATTGATACGC CCATTGATAT TATAAAAATT GTCAATCAAT TTGCTGTATC GCATAAGATA	1080
TCCTACATAT CAGGAGGGTT TAATGGATGC TATCTTATTA TTGATAATAT ATATATCCCT	1140
ACCATCGGTT CTTGCTTTGG TTGTCGGAAT ATAAACAAAG ATATAAATA GTACACTTTA	1200
TCTGATAAGA CAAAGTGGCC GACTACACCA GAGATGCCTG CTATTTTGGG AGGGATAATG	1260
ACTAATTTAA TAATTTAAAT ATTTCTGGGA TGTTATAATG AAATCCTAAT AGATAACGCT	1320
TACGTTTATA ATATGAGAAA TCATGCTCTA AGTCAAGAAA AATATGTTCT GGAAAACGGA	1380
GAATGTCCAA TTTGTAaaaa AATAATAAAG TGAAAGATAA CAATATTAGA GCGAAAACAT	1440
TTATTCGTTT AGTTTGTITT TGCTTATTAT CAGGAGGAGT AGCTTTTTTA TCTGCTATTG	1500
GGCAGTTCAC TGTATAGAA ACACAATTAA TAGTATTGTT CTTGGGTATT ATTTTGTCTA	1560
TATATTATGC TACTACAAT AAAAATATTC AAACATCATT GGAAAAATA GTATGGCTTT	1620

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TTTCATCGTT TGAGATTTTA TTTTGTCTTG TTAATTTTAG AACATTTATT CAGTTACCAG	1680
TGGATATTTT TATTGGTATG ATAATATTTT TAATGCTGTG GATATTTATT ATGTTAGGTA	1740
TAGTGTGTCT TAGTTATTAT ATAACTTTAT TATTTAGCAA GGAGGCTTAG TATGTTTAAA	1800
AAAATAGGTA TAATGAGCAT TTGCATATAT ATAATTATTT TATACTGCTT GAGAATGTAT	1860
CGTATTATCA ATAATATTGA AACAACTTGT CTAACGGTTA TATGCTTAAT GTTATTGTTT	1920
TTTTTAAGAC GTTTATTTGA TAAAGATAAG TAAATAGATG TTAAGTAAAA ATGTAGAATA	1980
TAAAGGAGGT GCAATGAGTA TGATTGAAGT TAGCCATTTA TCAAAAAGTT TTGGTGATAA	2040
AATAGCTTTA AATAATATAA GCTTCACTGT TAAAGAAGGT TAGATTTTTG GATTTTTAGA	2100
ACCATCTGGT TCTGGAAAGA CCACAACGAT TAATATTCTG ACTGGGCAGT TCCTTGCCGA	2160
TAAAGGACAA TCTATTATTT TGGGACAAAA ATCTCAAAAT TTAACAAGCG GTGAATTAAA	2220
GAGAATTGGA TTGGTTAGCG ATACAAGTGG ATTTTATGAG AAAATGTCTC TGTATAACAA	2280
TCTTCTTTTT TATAGTAAAT TTTATAATAT TAGTAAATCA CGTGTGATA ATTTGTTAAA	2340
GCGAGTAGGA TTATATGATA GTCGCAAGAT GGTAGCAGGA AAATTATCCA CTGGAATGAG	2400
GCAACGAATG CTTTGTAGCAC GAGCTCTTAT CAACAACCCC GCTGTACTCT TTCTGGATGA	2460
ACCGACCTCA GGTCTAGATC CCACAACCTC TCGAACAATT CATGAGTTAA TTTTAGAATT	2520
GAAAACAGCA GGGACAACGA TTTTCTAAC GACTCATGAT ATGAATGAAG CAACTCTTTT	2580
ATGTGATTAT GTTGCCTTAT TAAATAAAGG GAAATTAGTT GAGCAAGGAG CTCCTTCTGA	2640
ACTCATTCAA AGATATAATA AAGATAAAAA GATTAAGGTT ACAGATTATA ATGGGAATCA	2700
GATAACTTTT GATTTTACAT CACTAGAACA GGTATCTCAG ACTGATCTGG AAAATATTTT	2760
TTCAATTCAT TCATGTGAGC CTACTTTAGA AGATATTTTT ATCACATTAA CAGGAGGAAA	2820
GCTAAATGCT TAAACGGTTT CTGGCTTTGG TATGGTTGCG TTGTCAAATC ATCCTTTCCA	2880
ATAAGAGTAT TTTATTGCAA GTTTTAGTGC CTTTGTCTT CACATATTTT TATAAATATC	2940
TTATGGAAAC ACAGGGGAAG GTCAACGATC AACAGGCATT AGTTCTTTTG ATGATGTGTT	3000
TACCTTTTTT TTTTCTTTG GCTGTTGGAA GTCCTATAAC TATTATCTTG TCTGAAGAAA	3060
AAGAAAAGTA CAATTTACAA ACTCTTCTGT TGAGTGGTGT TAAAGGCTCC GAATACATTT	3120
TATCAACTAT GTTCTTCTCT TTTTGTCTAA CTTTGTGAT TATGGGAACT ACTCCTCTTA	3180
TTTTAGGAGT TACAATTGTA CATACTTTTA ATTATATTAC AATCGTTCTT CTAACCTCTT	3240
TATCCATCAT TTTATTCTAT TTATTGATAG GTTTAACCGC GAAGAGCCAA GTAGTAGCTC	3300
AGGTATACAG TCTTCTGCT ATGATTTTAG TTGCTTCTT ACCGATGCTA TCTGGTTTGG	3360
ATAAGACAGT TGCGAAGATA ACAGATTATA GTTTTATGGG ACTATTTACT AAGTTTTTCA	3420



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CAAAATGGGA GGAATTTTCA TGAATAAAA CTCTAATTCC TAATCTAACA CTACTTATTT	3480
GGATTGTTCT TCTATTAAC TTAATTACGA TAACTATTAG GAAAAAGAAA ATTTCTTAAT	3540
TGAGTTATTT TAATGATTAT AACACAAGT GGGAAGGAAA AAATGAACGT ATCTTTTGA	3600
CAGCAATTCT ACAGAATAGT CTTATTGCTA TATTTTGATT TGAGTGACG AAAAAAGAAA	3660
AATAACAATA GTGCTCATA TAATTGCAGA AGTTTTGGGT GATAAGATAA CTGATAAATT	3720
GCAATAAAAA ATGCAACATT TTAAATCTC CTCTATAAGT GCTTCAAAAA GTGCTTCAAA	3780
ACCTGTCTTG TAATCCAAGT ATTTTGGGG ACGGTGATTA ATAAGCTAGC AAAGCATCAT	3840
TAAGGATTTT TTCGGTAATT GTTGCCAAAT CGGTTTAAGA AAATACTCAC GAAGAAGTCC	3900
ATTGCGATTC TCATTACTTC CCCTTTGCCA AGATGAATAG GCATCCGCAA AATAAACAG	3960
AATTCCCAT TGTTCATTA AAGGGTAACA AGCAAACCTCT TTTCTCTGT CCGAAGTGAA	4020
AGTCTTTAAC TATTCTTTTG GAAAGAGTCT TGTGAGGTCT TCAATAGCAG TCAACATGGA	4080
TTAGCTGTT TTTACTTGAC AAGTGCTAGT AGAAATAATA GAATAGTAAA AAACCTTTAA	4140
AGCAGTCCAG AGAGGCAGCT AAGGTTAGAC GGTGAAAGGG TGGAGACTAC CCATTTTTCG	4200
TGGAACCTTG CTGTTGGCAG GTTCCTTTT TCGTGGCTTC TGTGCGCCAG ACTCTCTCAC	4260
TAGTAAAGGT AAAAGGAGAA ACCTATGCCA GAACATCGTC CAATCATTGC TCTTGATTTT	4320
CCTAGTTTTG AGGCGGTCAA GGAATTTTGA GCTCTTTTCC CAGCAGAAGA AAGCCTTTAT	4380
CTCAAGGTAG GGATGGAGCT TTATTACGCA GCGGGGCTG AGATTGTGTC CTACTTAAAA	4440
GGTTTGGGTC ATAGTGCTT TTTGGATCTC AAACCTCATG ACATTCCTAA TACAGTCAAG	4500
TCAGCCATGA AGATCTTGTC TCAGCTTGGT GTCGATATGA CTAATGTCCA TGCGGCTGGT	4560
GGTGTAGAGA TGATGAAGGC GGCGCGTGAA GGTCTTGGGA GTCAAGCCAA ATTGATCGCT	4620
GTAACCTCAGC TCACATCAAC GTCAGAAGCT CAGATGCAGG AGTTTCAAAA TATCCAAACC	4680
AGTCTGCAAG AGTCTGTGAT TCACTATGCC AAGAAGACAG CTGAAGCTGG CTTGGATGCT	4740
GTGTTTGCT CGGCTCAGGA AGTACAAGTC ATCAAGCAGG CTACCAATCC AGATTTTATC	4800
TGTCTGACAC CAGGGATTCG TCCAGCTGGT GTTGCAAGTTG GAGATCAAAA ACGAGTCATG	4860
ACACCTGCTG ATGCCTATCA AATCGGCAGT GACTATATCG TAGTGGGACG TCCCATTACC	4920
CAAGCTGAGG ATCCTGTTGC AGCTTATCAT GCCATCAAGG ATGAATGGAC ACAGGACTGG	4980
AATTAAAGAA CTAGATTAGA AAAATAAAG GAGAATACCA TGACACTTGC TAAAGATATC	5040
GCTAGCCACC TCTTGAAAAT CCAAGCCGTT TACCTCAAAC CAGAGGAACC CTTCACTTGG	5100
GCATCTGGTA TCAAGTCACC GATTACACT GATAATCGTG TGACACTAGC CTATCCAGAA	5160

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ACTCGTACCC TAAATTGAAAA TGGTTTTGTG GAAGCTATCA AAGAAGCCTT TCCTGAAGTA	5220
GAAGTGATTG CAGGAACTGC AACAGCAGGG ATTCCACACG GAGCCATTAT TGCTGATAAG	5280
ATGGAAGTGC CTTTTGCCTA CATCCGTAGT AAACCAAAAG ACCACGGAGC TGGTAATCAA	5340
ATCGAAGGTC GCGTAGCTCA AGGTCAAAAA ATGGTAGTGG TTGAAGACCT TATTTCAACG	5400
GGTGGTTTCTG TTTTGAAGC TGTAGCAGCA GCCAAGCGAG AAGGAGCAGA TGTACTTGGA	5460
GTTGTAGCGA TTTTCAGCTA CCAATTGCCA AAAGCAGATA AGAACTTTGC AGATGCTGGT	5520
GTTAAACTTG TGACGCTTTC AACTATAGC GAGCTTATCC ATCTAGCCCA AGAAGAAGGT	5580
TACATCACGC CAGAGGGCCT TGATCTTCTA AAACGCTTCA AAGAAGACCA AGAAAATTGG	5640
CAAGAAGGTT AGGTCAGTAA GATAAAGAGA GACGAGGCTA CCGAGTCTCT TTTACCATT	5700
TATTTAAAAAT ATGACAG	5717

(2) INFORMATION FOR SEQ ID NO: 103:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 5558 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 103:

CCTGGACTTT CTAAATGAA ATCTTGGCAG CTGGATCAAG CCCTTCATGA GCATTTTTC	60
GAAGAAGAA TAGCTGGTCA CTTTCATGTC CTTCTATGGA CTTTTTTTAC AATGGCATTG	120
CTATCACACC CAATACCTAT CTAAGCGCCT GGTTCTGAAA CTTTATTGCA GCTCTTCCTC	180
TAAATTTCTT AATTGTTGAA CCAATTGCCC GTTTTATACT AAGTTCTTTT CAGAAACCAT	240
TTACTGGGGA AGAAGTTGAA GATTTTCAAG ATGATGATGA AATCCCAACT ATTATCTAAG	300
CCAGTTCTGT AACTACTAA TATTTGAAAT CCACCTCCTT TTAGGGTGCA ATGGTTATAA	360
ATGAATTTTT GAGAGGATCA GAATGAAAA ACTAGCAACC CTTCTTTTAC TGTCTACTGT	420
AGCCCTAGCT GGGTGTAGCA GCGTCCAACG CAGTCTGCGT GGTGATGATT ATGTTGATTC	480
CAGTCTTGCT GCTGAAGAAA GTTCCAAAGT AGCTGCCCAA TCTGCCAAGG AGTTAAACGA	540
TGCTTTAACA AACGAAAACG CCAATTTCCC ACAACTATCT AAGGAAGTTG CTGAAGATGA	600
AGCCGAAGTG ATTTTCCACA CAAGCCAAGG TGATATTGCG ATTAACTCT TCCCTAAACT	660
CGCTCCTCTA GCGGTGAAA ATTTCTCAC TCACGCCAAA GAAGGCTACT ATAACGGTAT	720
TACCTTCCAC CGTGTCATCG ATGGCTTTAT GGTCCAAACT GGAGATCCAA AAGGGGACGG	780
TACAGGTGGT CAGTCCATCT GGCATGACAA GGATAAGACT AAAGACAAAG GAACTGGTTT	840

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CAAGAACGAG ATTACTCCTT ATTTGTATAA CATCCGTGGT GCTCTTGCTA TGGCTAATAC	900
TGGTCAACCA AACACCAATG GCAGCCAGTT CTTTCATCAAC CAAAACCTCTA CAGATACCTC	960
TTCTAAACTC CCTACAAGCA AGTATCCACA GAAAATTATT GAAGCCTACA AAGAAGGTGG	1020
AAACCCTAGT CTAGATGGCA AACACCCAGT CTTTGGTCAA GTGATTGACG GTATGGATGT	1080
TGTGGATAAG ATTGCTAAGG CCGAAAAAGA TGAAAAAGAC AAGCCAACTA CTGCTATCAC	1140
AATCGACAGC ATCGAAGTGG TGAAAGACTA CGATTTTAAA TCTTAAAAAC CAAAAAATA	1200
CAGTATCCAC ATTGGTACT GTATTCTTT TACTCTCAT CTTAAGTTAA ATTATTAAAA	1260
TCCCATATTT GGTCTATCCA GCCTTCATAA AAGTCTGGCT CGTGGCAGAC CATAAGGATA	1320
GATCCCCTAT ATTCTTTGAG AGCGCGTTT AGCTCATCCT TTGCATCCAC ATCCAAATGG	1380
TTGGTCGGCT CGTCCAGCAC TAAAACGTTG TTTTCACGAT TCATCAAGAG ACAGAAACGA	1440
ACCTTGGCTT GCTCTCCCC TGATAATACT TGAATCTGGC TTTCAATATG TTTGGTTGTC	1500
AAACCACAAC GGGCAAGGGC TGCACGGACT TCTGCTTGAT TAAGGGCAGG AAAGGCATTC	1560
CAGACAGCTT CAAGAGGAGT TTGGCGATTA CCGCCTTCTA CTTCCTGCTC AAAATAACCA	1620
AGTTCTAAAT AATCTCCAG CTCCACTTCC CCAGCGATTG GCGAGATAAT GCCCAAGAGA	1680
CTCTTCAAGA GAGTTGTTTT TCCAATACCA TTAGCACCAA TAATCGCAAC CTTTTGATTG	1740
CGTTCGAAGG TAAGATTTAA AGGCTTAGTA AGAGGACGGT CGTAACCAAT TTGCAACTTC	1800
TTGGCTTGA AGATAAAGCG CCCTGGTGTA CGAGCTGGTT TGAAATCAAA GGATGGTTTT	1860
GGTTTCTCAC TTTGGAGTTC GATAATATCC ATCTTATCCA ATTTCTTTTG ACGAGACATA	1920
GCCATATTAC GAGTTGCAAC ACGGGCTTTA TTACGAGCCA CAAAGTCCTT GAGGCTGCA	1980
ATCTCTTTCT GCTGGCGTTC GTAGGCTGCC TCTAGCTGAG ATTTCTTCAT AGCATAAACT	2040
TCTTGGAAC TGTAGTAGTC ACCAGAGTAA CGCGTCAGCT GTTGATTTTC CACATGATAG	2100
ACAATATTAA TAACGTCATT GAGGAATGGA ATATCGTGCG AAATGAGAAC AAAGGCATTC	2160
TCATAGTTTT GGAGATAGCG CTTGAGCCAA TCAATATGCT CAGCATCCAA GTAGTTGGTC	2220
GGCTCGTCCA ACAGCAAGAT ATCAGGCTTT TCAAGGAGAA GTTTTGCCAA AAGCACCTTG	2280
GTTCTTTGCC CACCTGACAA AGAAGTTACA TCCGTATCCA TGCCAAAGTC CATAACACCA	2340
AGAGCACGCG CTACTTCGTC AATCTTAGCA TCCAAGGTAT AGAAATCACG ACTCTCCAGA	2400
CGGTCTTGAA GTTCTCCTAC TTCTTCCATG AGAGCATCAA CATCCGCGCC GTCTTCAGCC	2460
ATTTTCATAT AGAGGTCATT GATACGAGCT TCAGCTTTGA AAAGCTCATC AAAAGCCGTA	2520
CGGAGAACAT CACGCACCGA CTGTCTTTCA GCAAGGACAG AGTGCTGATC CAAGTAACCA	2580

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GCCGTCACAT ATTTGGACCA CTCAACCTTT CCTTCATCTG GCAGCATTTT ACCAGTCACG	2640
ATACTCATAA AGGTTGATTT TCCTTCACCA TTGGCACCGA CCAGGCCGAT ATGTTCTCCC	2700
TTGAGGAGAC GGAAGGACAC ATCTTCAAAA ATTGCACGGT CACCAAAACC GTGACTCAGA	2760
TTTTTAACTT CTAAAATACT CATTTTAATT CCTTACCTTG TTTTATGTA ATCGTTTATA	2820
AAGGAGCCAA GCCAGATAGC CACCCAAAGT GTTGGTCCAC AAATCATCAA TCTCAAAGAC	2880
GCGATTGAAA TCAAAGAAAA AGTCCAAGAT TAATTGCGTA CACTCGATTG CAAGACTCAC	2940
AAGAAAACTA AAAAGAAGGA CCTTTTMTGT TTTCCGCAA TTTGGAAATA GATAAAGGAG	3000
TTGGAAAATC AGAGGAAAAA ACAAGAAGAC ATTGAGGATA TTTTGTAATA AAATCCAACA	3060
TAATTGTCCA ATGTCACTCA CTTCGCCCAG TTTCCAGAGA GAATTGAAAG GAGTCAAAAG	3120
AAAAACCAGG CGTCCAAGAT GCTGAATACC TGGAGTTCCC ACTCCCACGG TAGATTGTTT	3180
TTGAGGAGTA AAGCAAAAAC AGACAATGCA AATGCTATAG AAAATGACTC CCCAGACCAA	3240
AATATGATTA TAAGTCTTCT TCATCATTAA GGATTTACCG CTGCGACTGC CTTCTGGCGG	3300
TCACGTTTCA TTGTGTTAGA GCGCAATTGT CCACAAGCTG CGTCAATATC TGTACCATGC	3360
TCTTGACGAA CCACACAGTT GACCCCTTTT TTCTTAAGCG TATCATAGAA AGCCAACACG	3420
CACTCTTTGG GACTACGGCT ATATTGGTCA TGCTCACTAA CTGGGTTATA AGGAATCAAG	3480
TTTACATAAG ACAATTTCTT GATGTTCTTG AGCAATTCAG TCAATTCCAA GGCTTGTCTT	3540
ACACCGTCGT TGAATTCATT AAGCATGATA TATTCAAAGG TTACACGACG GTTTGTTGTC	3600
TCAATGTAGT ATTCAATAGC AGCAAAGAGT TTTTCAATCG GAAAGGCACG GTTAATCTTC	3660
ATGATACTTG AACGAAGTTC ATTGTTAGGT GCGTGAAGAG ACACGGCAAG ATTGACCTGA	3720
ACCCCTTCAT CAGCAAAGTC ACGAATTTTA TGAGCCAAAC CTGAGGTTGA AACCGTGATG	3780
TGACGAGCAC CGATAGCCAT TCCTTTATCA TCATTGATAG TACGAAAGAA ATTCAAGACA	3840
TTGTTGTAAT TATCAAAGGG CTCACCGATT CCCATGACAA CGATATGGCT GATGCGTTCA	3900
TCCTGACCAC GCTCATCAAA GTATTTCTGA ACCAGCATGA TTTGCGCTAC GATTTACCG	3960
TTATTGAGGT CACGTTGCTT CTTAATCAAA CCAGAGGCAC AGAAGGTACA ACCGATATTA	4020
CAGCCGACCT GAGTGGTCAC ACAGACAGAT AAACCATAGT GTTGACGCAT GAGTACAGTC	4080
TCAATTAACA TACCGTCGGG CAATTCAAAG AGATATTTGA CTGTACCATC AGCAGACTCT	4140
TGCACAATAC GTTGTTTCAA GGGATTGACC ACAAAGTGGT CATTGAGCTT AGCAATCAAA	4200
TCCTTGAAA GGTGGTTCAT TTCTTCAAAT GACTGCACAC GTTTACGGTA GAGCCATTCC	4260
CAGATTTGAT CTGCACGGAA TTTCTTTTCT CCCTGCTCCA ATACCCATTC CTGCATGGTT	4320
TGATGTACCA AACTATGAAT TGAGGGTTTC ATTTCTTCTC CTTATTCTCT ACTCACTTCT	4380

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GACCAATGAC AAAATGACGT TGTCCCTTGT CGTCTTTCTG ACGACGTCTA TTTTCTTAT	4440
CTGCATTCTGA CTTTCGTTTA GTTTGAGTCG GTTCTTTCC TTTCTAGAA GGTGTTTCTT	4500
CTTCCGTCTT ACGCATTTTC TTGTCAAATG ATGCTCGCTT AGGGGCTTCA TTTTCTAAGA	4560
CAAAATAGGC ACAACCATAA CTACAATACT CTAAGGTA GTCTTGTAAG CGACTGATTT	4620
TTTCAAGTTT TTCTTCTGTT CGGTCACTCT TGTAAAAACC TCGTAGGCGA AGCTGTTCGT	4680
TGCTCCAGTC CCCCACGATA TAATCAAAC TGGTTAATAC TTCTGAAAA CGCTGATTAA	4740
AAGTCGTAC ATCAAAGGCA TCCTTGATAT TTTCAACCA GGAAGGCT ATCCCTCCG	4800
TTTCGACCTT GTCCCGTGT AAATGGAAC CCGGACCAGG AAAGTTGTTA TAGTTGTATA	4860
ATTCAGGTGC AATTTCTTTT CGCATAGATA TCCTTTTTTC ACGATTACTT AATACTTAT	4920
TCTACCATAA TTTCTAGCAG TTAGCAGCTT TCTCATAAAA ATGAAAAAG TCTGACGATT	4980
TTGTGAGACC AGAATCTTAT AACCTAAAA GAGAAGAACA ATTCTTCCCT CCAACTATCA	5040
TTATTTAGCA GCTGCGTACA ATTCATCTAC TTTATTCCAG TTGATTACTG AAAAGAAAGC	5100
TTTGATGTAG TCAGGACGCA CGTTCCGGTA TTACAGTAG TAAGCATGTT CCCAACGTC	5160
CAAGCCCAAG ATTGGTTTTT TACCTTCTGA GATTGGTGTG TCTTGGTTTG CTGTTGAAGT	5220
CACCTCAAGT TTCCCTTCTT TGTGACAAC CAACCATGCC CAACCTGAAC CAAAACGAGT	5280
TGTTGCTGCT GCAGTGAAGG CTGCTTGAA TTCTTCAAT GAACCAAATG TTGCATCGAT	5340
TGCTGCTGCC AGTTCTGCTG AAGGAGCTGT TTTCTCGGA GTCATCAATT CCCAGAAAAG	5400
AGCGTGGTTC AAGTGTCCGC CACCATGTT GATAAGTCT TGACGGATAT CAGCTGGAT	5460
AGATTCTACA TCAGCAAGCA AGGCTTCAAG GTCTTCACCG ATTTCAGGT GTTTTCTAA	5520
AGCTGCATTG GCATTGTTGA CATAAGTTG ATGGTGT	5558

(2) INFORMATION FOR SEQ ID NO: 104:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6735 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 104:

GGAATTGTAA ATATCATATT GTTTTGCAC CCAAATATCG TCGTCAAATC ATTTATGGCA	60
GATACAAAGC TAGTATCGGA AGAATCATAC GTGACTTATG TGAGCGTAAG GGTGTAATAA	120
TCCATGAAGC GAATGCTTGT TCAGACCATA TTCACATGCT TATCAGTATT CCTCCGAAAC	180

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TTAGTGTTTC GTCCTTTATG GGCTATTTAA AGGGCAAGAG CAGTTTGATG ATTTTGTATA	240
AGCATGCGAA TTTAAAATAC AAATATGGCA ATCGCAAGTT TTGGTGTAGA GGCTATTATG	300
TAGATACGGT AGGCCGTAAT CAGAAAAGTA TAGCTGAATA TATTCAGAAT CAATTACAAG	360
AAGACAGAGT AGCAGACCAG CTCACGTTAT TCGAGTCAGT AGATCCGTTT ACTGGCGAAA	420
TAAATAAGAG GAAGTAACTA AGGTGCTTTA GCACCTGCTC GGGAAAAGTG TCGCGGAGGA	480
AGCTATTTTC GTGGGCCTTT GGCCCTGGCC GGTAGAAGCG GCTTATAGCC GCAGAACAAA	540
CCACCAGTTC ACACTGGTGG TTTTGATTTA AAAAAGTTGA TACATAAAAA TAAAAGTCTA	600
TATAAAGGAT GGTAAGATTC CTGTTGTCCG ATTTGGACAA TATCCTAAAT AGTTACAATA	660
TATGGTCTAT ACTTTTCTT AGGAGAAAGC TAGATGTACA GACGTTTGAG AGATTGAGG	720
GAGGATCATG ATCTGCCCCA AAAGCAAATA GCTACAATAC TTTCGTTTAC AAATTCAGCT	780
TATGCCAAAA TTGAACGGGG TGAGCATGCG TTGACGGCTG ATGTATTGGT TAAACTCTCA	840
GATTTCTATG ACGTCAGTAC AGACTATTTA TTGGGATTAA CTGATTTTCC TGATAAAATT	900
CGCTTTAGAA AATAATCTCC TCAATTTTCT AGAGTTTGAA AATGAGTGAG ATTTTTTATT	960
TGCCCTTTGA CAACTGAATA GCCTAAAATG GTACTTTCCT CATTTGTGGA GCAAATTTGA	1020
ATGGCTCGCC ATGATAAGAG CGATTTTAAA ATCATCAATA AAATAGAGCG ATACTTTATA	1080
TGCCATGATA CAAATGATAT ACAATGATAC TTCTGACCGT TCAGCCTGCC AACGTAAAAAG	1140
AGCAGCAAGT GAAATTCTTA TGATGACTTC ATCAGTCATG CCACGTTGAA TGTGTGAGTT	1200
TGTTAGATAA ACGCAATTAA TCCTCAAAAG GTTCCCCGAA CCTTTTGAGT TCTACAGACG	1260
CATCAGTGG AGTGTGTAAG CTTGTTGCTA AAAGCGTAAA AACCTTGGA CGAAAGGAAT	1320
AATAGACTTT CTGCGAAACA AAAATATAAT ACAATAAAC TATGAATGAT GAAGCAAGTA	1380
AACAATTGAG CGATAGCCGT TTCAAGATCC TTGTAGGTGT TCAGCGCACG ACTTTTGAAG	1440
AGATGTTAGC TGTGTTAAAA ACAGCTTATC AACGTAAACG CGCAAAAGGT GGACGAAAAA	1500
GCAAATTAAG CCTAGACGAT CTCCTTATGG TAACTATTCA ATACATGCGA GAATAGAGCA	1560
CTTATGAACA AATTGCGGCT GATTTTGGCA TTCACGAAAG CAACTTAATC CGTCGGAGTC	1620
AATGGGTGTA AGCAACTCTT ATTCAAAATG GTTTTACGAT TTCAAATTTCT GCCTTAATTC	1680
TGTAAAAACA GTAAAATTCG AAGGATTGTA AGGTAAGAGT TTTTTTCTTT CTGAAAAAAT	1740
GGTATAATAG CAATCAAAAC TAGAAAATAA AACGGAATTT GGAACAGATT TGTCTGTATC	1800
CTAGTAGAGT GGTGATACTA TGAAGATTAG TAAGAGGCAC TTATTAAATT ATTCCATCTT	1860
GATTCCCTAC TTGCTTTTAT CTATTTTGGG CTTGATTGTG GTCTATTCTA CCACCAGTGC	1920
TATTTTAATT GAAGAAGGCA AGAGCGCCTT GCAGTTGGTT CGAAACCAAG GAATCTTTTG	1980

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GATTGTTAGT TTGATACTGA TTGCCTTAAT TTATAAATG AGACTAGATT TTTTGAGAAA	2040
TGAGCGACTA ATCATTTTAG TTATATTAAT AGAAATGCTT TTATTGTTCT TGGCTCGTTT	2100
TATTGGTATT TCCGTAAACG GGGCATACGG TTGGATTTTCG GTTGCAGGAA TAACTATTCA	2160
GCCAGCTGAG TACTTAAAAA TCATTATTAT TTGGTATTTA GCTCACCGAT TCTCCAAACA	2220
GCAAGAAGAA ATAGCTACTT ATGATTTTCA AGTTTGTACT CAAAATCAAT GGCTTCCCCG	2280
TGCTTTTAAT GATTGGCGAT TCGTCTCCT AGTTCTGATT GGAAGTTTGG GAATTTTCCC	2340
TGATTTAGGA AATGCGACTA TTTTAGTCTT GGTTCCTTG ATTATGTATA CAGTTAGTGG	2400
AATCGCTTAT CGCTGGTTTT CAACCATTCT GGCCTCGTA TCTGCCGCTT CTGTCTTGT	2460
CTTGACCACT ATCAGCCTAA TCGGTGTTGA GACCTTTTCA AAAATTCCAG TATTCGGCTA	2520
TGTAGCCAAG CGCTTTAGTG CCTTTTAA TCCTTTTGCC GATCGTGCTG ATGCAGGTCA	2580
CCAGTTAGCT AATTCTTATT TTGCCATGGT CAATGGCGGT TGGTTTGGTC TAGGCTTGG	2640
AAACTCGATT GAAAAACGAG GTTATTTGCC AGAAGCTCAT ACAGACTTTG TCTTTTCTAT	2700
CGTGATTGAA GAATTTGGCT TTGTTGGTGC CAGTCTTATT TTAGCTCTCT TGTTTTTCAT	2760
GATTTTGCGG ATTATCTTGG TCGGTATCCG AGCGGAGAAT CCTTCAATG CCATGGTTGC	2820
ACTCGGTGTC GGAGGGATGA TGTTGGTTCA GGTATTTGTC AATATCGGAG GGATTTCGGG	2880
CTTGATTCCA TCTACAGGAG TGACTTTCCC CTCTTATCC CAGGGTGGAA ATAGTCTTCT	2940
AGTCTTATCA GTGGCAGTAG CCTTGTCTT AAATATTGAT GCCAGTGAAA AACGCGCTAA	3000
ATTGTACCGA GAATTGGAAA ATCAACCAAT GAACCTTCTG TTGAAGTAGG ATAAAGAAA	3060
GATAGTTTAT GTCTCTTCAA AAATAGAAA ATTATAGTAA TAAAAGTGT GTGCAAGAAG	3120
AAGTCTTGAT TCTAACAGAA TTAGTGAAG ATATTACTAA AAATATGCTT GCCCCACAGA	3180
CCTTTGAAAA AATAATACAG TTGAAAGAAT TATCAACGCA GGAAGATTAT CAAGGTCTAA	3240
ACCGTCTAGT GACTAGCTTA TCAATGATG AAATGGTCTA TATTTACGC TATTTCTCTA	3300
TCTTGCCTCT TTTGATTAAT ATTTAGAGG ATGTGGATT AGCTTATGAA ATCAATCATC	3360
AAAATAATAT TGATCAGGAC TATTTAGGTA AATTATCTAC AACGATTAAA TTGGTAGCAG	3420
AAAAGGAAAA TGCCGTTGAG ATCCTAGAAC ACTTGAATGT TGTCCCTGTT TTGACAGCCC	3480
ATCCAACACA AGTGCAACGC AAAAGTATGT TGGATTTAAC AAATCATATT CATAGTCTTT	3540
TGCGTAAATA CCGTGATGTT AAGTTGGGGT TGATCAATAA AGATAAATGG TACAATGATT	3600
TGCGTCGTTA CATCGAAATT ATCATGCAGA CAGACATGAT TCGTGAGAAA AAATTAAG	3660
TGACTAACGA AATCACGAAT GCTATGAAT ATTATAACAG CTCCTTTTGT AAAGCTGTAC	3720

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CTCATTGAC	GACGGAGTAT	AAGCGCTTAG	CGCAAGCGCA	TGGTCTGAAT	TTAAAACAGG	3780
CTAAACCAAT	CACCATGGGT	ATGTGGATAG	GTGGTGACCG	TGATGGAAAT	CCATTTGTTA	3840
CAGCAAAGAC	CTTGAAGCAG	TCTGCACTCA	CTCAGTGTGA	AGTCATCATG	AACTACTATG	3900
ATAAAAAGAT	TTACCAACTT	TATCGTGAAT	TTTCTCTTTC	AACTAGCATT	GTCAACGTCA	3960
GCAAGCAAGT	CAGAGAAATG	GCTCGTCAAT	CCAAGGATAA	CTCGATTAC	CGCGAAAAAG	4020
AGCTTTACCG	TCGTGCCTTG	TTTGATATTC	AATCAAAAAAT	TCAGGCAACT	AAAACCTATC	4080
TGATTGAGGA	TGAAGAAGTT	GGGACTCGTT	ATGAAACCGC	CAATGATTTT	TACAAGGATT	4140
TGATTGCCAT	TCGAGATTCT	CTACTAGAAA	ATAAGGGCGA	GTCTTGATT	TCAGGTGATT	4200
TTGTGGAATT	ATTGCAGGCA	GTAGAGATAT	TTGGTTTTTA	CTTAGCATCA	ATTGATATGC	4260
GACAAGACTC	TAGCGTCTAT	GAAGCCTGTG	TGGCAGAACT	CTTGAAATCA	GCAGGAATTC	4320
ATTCTCGTTA	TAGCGAGTTG	AGCGAAGAAG	AAAAGTGTGA	CCTTCTCTTG	AAAGAATTAG	4380
AAGAAGATCC	CCGAATTCCT	TCTGCGACTC	ACGCAGAAAA	ATCAGAATTA	TTAGCAAAAG	4440
AATTAGCTAT	TTTTAAGACG	GCTCGTGTTT	TGAAAGATAA	GTGGGAGAT	GATGTCATCC	4500
GTCAGACCAT	CATTTACAT	GCAACCAGCC	TTTCTGATAT	GCTAGAATTA	GCTATTCTGT	4560
TAAAAGAAGT	AGGACTGGTG	GATACGGAAA	GGGCGCGTGT	TCAGATTGTT	CCCCTTTTTG	4620
AAACAATTGA	AGACTTGGAT	CATTCAGAGG	AAACAATGAG	AAAATATCTT	TCTCTTAGCC	4680
TTGCCAAAAA	ATGGATTGAC	TCACGAAATA	ACTACCAAGA	AATCATGCTT	GGCTACTCTG	4740
ACAGTAATAA	AGATGGCGGT	TACTTGTCAT	CATGTTGGAC	CCTCTACAAG	GCTCAACAAC	4800
AATTGACTGC	TATTGGAGAT	GAATTTGGCG	TTAAGGTTAC	CTTCTTCCAT	GGTCGTGGTG	4860
GTA CTGTCGG	TCGTGGTGGT	GGGCCAACCT	ATGAAGCCAT	TACATCTCAA	CCGCTCAAGT	4920
CTATCAAGGA	TCGTATCCGC	TTGACGGAGC	AGGGTGAAGT	AATTGGGAAT	AAATACGGTA	4980
ACAAAGACGC	CGCTTACTAT	AACCTTGAAA	TGCTAGTATC	GGCAGCTATT	AACCGTATGA	5040
TTACTCAGAA	GAAGAGCGAT	ACCAATACCC	CAAATCGTTA	TGAAACCATT	ATGGATCAAG	5100
TAGTGGACCG	TAGTTACGAT	ATCTACCGTG	ATTTGGTCTT	TGGTAATGAG	CATTTCTATG	5160
ATTATTTCTT	CGAGTCAAGT	CCAATCAAGG	CTATTTCAAG	TTTTAATATT	GGTTCTCGTC	5220
CAGCCGCTCG	TAAGACTATT	ACTGAAATCG	GTGGTTTGGC	TGCCATCCCT	TGGGTATTCT	5280
CATGGTCACA	GAGTCGTGTT	ATGTTCCCTG	GATGGTACGG	GTTTGGTTCA	AGCTTCAAGG	5340
AATTTATCAA	TAAAAATCCA	GAGAATATTG	CTATCTTACG	AGATATGTAC	CAAAATTGGC	5400
CTTCTTCCA	ATCGCTTCTT	TCAAATGTTG	ATATGGTTTT	GTCAAAATCA	AATATGAATA	5460
TTGCTTTTGA	ATATGCTAAA	CTTTGTGAAG	ACGACCAAGT	TAAGGCCATC	TATGAGACTA	5520



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TTTTAAATGA ATGGCAAGTT ACTAAGAACG TTATCTTGGC TATTGAAGGA CATGACGAAC	5580
TCTTAGCTGA CAATCCATAT CTAAAAGCTA GTCTGGATTA CCGTATGCCT TACTTTAATA	5640
TTCTCAACTA TATTCAAGTTG GAGTTGATTA AACGCCAACG TCGTGGAGAA TTGTCCAGTG	5700
ATCAAGAACG ATTGATTCAT ATCACCATCA ACGGAATTGC GACAGGATTG CGTAATTCAG	5760
GTTGATAATT TTCAACAGTG AATGCTAAAA GTGAATATCA AAAAAATTCT AATAGACTAT	5820
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TGACAAGTAG TTTAAAAATG ATATAATTTA ACCATTGAGA AAAGTAATCA TACAACTTT	5880
TTAGAGAGTC TGTGGTAGCT GAAAACAGAT AAGTGGCAAT GATGAAAATT GGGCTGAATG	5940
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TGCGAGACTG AGCGATAGGG AAATTCCTTA TAATTGAGGT GGTACCGCGC ATCGACGTCC	6060
TCACACAAGT TTTTGTGTG AGGATTTTTT TGATGGAGGT TAGTATGGAA AGAAAACGAT	6120
GGCGTCGCTT GTTTAGATAA GTGAAATATG TTAAAGGAAA TAAAAAGGAG AAACAGAATG	6180
AAAAATAAAC GTTTAATTGG AATTATTGCT GCATTAGCAG TCTTAGTAGC AGGAAGCTTG	6240
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AAGATTGGTG TGCTTCAATT TGTGAGCCAT CCATCCCTTG ATTTGATTTA TAAAGGGATC	6360
CAAGATGGAC TTGCAGAAGA AGGATATAAA GATGATCAAG TTAAAATTGA TTTTATGAAC	6420
TCAGAAGGTG ACCAAAGTAA GGTGCGACA ATGAGTAAAC AATTGGTTGC AAATGGGAAT	6480
GACCTTGTGG TTGGTATCGC AACACCAGCA GCCCAAGGGT TGGCTAGTGC AACAAAAGAC	6540
CTACCGGTTA TCATGGCCGC TATTACAGAC CCAATTGGTG CTAACCTGGT TAAAGATTTG	6600
AAAAAACCAG GTGGCAACGT TACAGGGGTA TCTGACCACA ATCCAGCTCA ACAACAAGTT	6660
GAACTCATCA AGGCTCTGAC ACCGAATGTG AAAACAATCG GAGCTCTTTA CTCAAGTAGC	6720
GAAGACAATT CAAAA	6735

## (2) INFORMATION FOR SEQ ID NO: 105:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 6516 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 105:

CTAGAGGATC CCAGCAGGTA AATTGGCTTC AGCTGGCAAA AAAGTTGCCC TCGTTGAACG	60
CAGCAAGGCT ATGTACGGTG GAACTTGTAT CAACATTGGT TGTATCCCAA CTAAAACCTT	120

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GCTAGTTGCT GCTGAAAAGG ACTTGTCTTT TGAAGAAGTC ATTGCTACTA AAAACACGAT	180
CACTGGTCCG CTCAACGGTA AAAACTATGC GACTGTTGCT GGTACAGGCG TAGATATCTT	240
TGATGCGGAA GCTCACTTCC TTTCAAATAA AGTCATCGAA ATCCAAGCTG GTGATGAAAA	300
GAAAGAACTG ACTGCTGAAA CAATCGTCAT CAACACTGGT GCTGTTTCAA ACGTCTTGCC	360
AATCCCTGGA CTGCTACAA GCAAAAACAT CTTTGACTCA ACAGGTATCC AAAGCTTGGA	420
CAAATTACCT GAAAACTTG GAATCCTTGG TGGCGGAAAT ATCGGTCTTG AATTTGCCGG	480
CCTTTACAAC AAACCTGGAA GCAAGGTCAC AGTCCTAGAT GCCTTGGATA CATTCCTACC	540
TCGTGCAGAA CCTTCCATCG CAGCTCTTGC TAAACAATAC ATGGAAGAAG ATGGCATTGA	600
ATTGCTTCAA AATATCCATA CTACTGAAAT CAAAAACGAT GGTGACCAAG TGCTTGTCGT	660
AACTGAAGAC GAAACTTACC GTTTCGACGC CCTTCTCTAC GCAACTGGAC GCAAAACAAA	720
TGTAGAACCA CTTCAACTTG AAAATACAGA TATTGAACTA ACTGAACGTG GTGCTATTAA	780
AGTAGACAAA CACTGTCAAA CAAACGTTCC TGGTGTCTTT GCAGTTGGAG ATGTCAACGG	840
TGGCCTTCAA TTTACTTACA TTTCACTTGA TGACTTCCGT GTTGTTTACA GCTACCTTGC	900
TGGAGATGGC AGCTATACAC TTGAAGACCG TCTCAATGTG CCAAATACTA TGTTTCATCAC	960
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CGGTGCCTTC AAAGCTGTTG TCAATACTGA AACAAAAGAA ATTCTTGGAG CAAGCATCTT	1140
CTCAGAAGGT TCTCAAGAAA TCATCAACAT CATCACTGTT GCTATGGACA ACAAGATTCC	1200
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ACTTCTGCGG AATCTCAAAT CTGTCTTTCT CCTCTTTTAT GATATAATAG AAACATGAAC	1380
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GGACCTGGAA GTACGCTCCC AGGGAAAGTC GCCCTTCAAT TTGATAAAGA TATTTTACAA	1500
AACCTAGCTA AGAACTACGA GATTGTCGTT GTCACTGGAA CAAATGGAAA AACCTGACA	1560
ACTGCCCTCA CTGTCGGCAT TTTAAAAGAG GTTTATGGTC AAGTTCTAAC CAACCCAAGC	1620
GGTGCCAACA TGATTACAGG GATTGCAACA ACCTTCCTAA CAGCCAAATC TTCTAAAACT	1680
GGGAAAAATA TTGCCGTCCT CGAAATTGAC GAAGCCAGTC TATCTCGTAT CTGTGACTAT	1740
ATCCAGCCTA GTCTTTTGT CATTACTAAT ATCTTCCTG ACCAGATGGA CCGTTTCGGT	1800
GAAATCTATA CTACCTATAA CATGATATTG GATGCCATTC GGAAAGTTCC AACTGCTACT	1860
GTTCTCCTTA ACGGAGACAG TCCACTTTTC TACAAGCCAA CTATTCCAAA CCCTATAGAG	1920

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TATTTTGGTT TTGACTTGGA AAAGGGACCA GCCCAACTGG CTCACTACAA TACCGAAGGG	1980
ATTCTCTGTC CTGACTGCCA AGGCATCCTC AAATATGAGC ATAATACCTA TGCAAACTTG	2040
GGTGCCCTATA TCTGTGAAGG TTGTGGATGT AAACGTCTCTG ATCTCGACTA TCGTTTGACA	2100
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ATCCAAATCG GCGGGCTCTA TAATATCTAT AACGCCCTAG CTGCTGTGGC CATCGCCCGT	2220
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GACTTTGAAC AAATCACTGA CATGGACATT CCTGAAATCA ACGCTGGCGG TGTCGTCTAT	2520
TCTGAAATCG CTCGTGCGCT CCGAGTGACT GGCTATCCAG CTGAGAAAAT CACTGAAACG	2580
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CTGGCAACTT AACTGCCAT GCTGGAATTT CGTGAACTGC TGGCTAGTCG TCAGATTGTT	2700
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TTCTCTCCAT GATGACTTTG ATGAAAATCA CTACGACATC GCCTTTTTCG GTGGTGGTCA	2940
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ATATTATGTT GAAGCTTCAG GAAAACGTAT CGAAGGGCTA GGGGTCATGG GACACTACAC	3120
GCTCAACCAG ACCAATAACC GTTTTATCGG TGACATCAAG ATTCACAATG AAGATTTTCA	3180
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CAAGGCTGAC TTTTCTTAAA CAAAGGAAAA TGATATCAAA GAACTCCGTT ATCTGTGCGG	3540
AGTTTTTTGT CTTTTCTTTT ACCCTTCTCC CTGTCATTTT CTCTCATTTT TTGCCAAAAT	3600
AGAGGGGTAG AAAGAAGGTA GCATATGTCT AAATTACAAC AAATCCTAAC ATATCTTGAA	3660

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TCAGAAAAAC TAGACGTCGC TGTGCTATCT GACCCCGTCA CAATCAATTA CCTCACTGGT	3720
TTTACAGTG ATCCCATGA ACGCCAAATG TTCCTCTTTG TCCTAGCAGA TCAGGAACCT	3780
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CAAATCGACT TTGCCATGAA ACGTGAAGGT TATGAAATGA GCTTTGATAC CATGGTCTTG	4200
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GATGAAACCC CAAGAAACAA CAATGGAAAT GATAATTGAT TAAGAAGTCA TCTATCAAAA	4920
GATGTTAGAA AAAGTTCAAT TTCACTAGAA AATGAGGAAA ATCTCCCCAC AATAAAACGC	4980
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TCATAGCCAT AAAACATTTT GGATTTTAAA ATGCCAAAGA AAGATTCCAT CATACCGTTG	5220
TCTTGGCTGT TTCCCTGCG TGACATAGAT GCTTGAATTC CCTTATTCTC TAGGAACCGA	5280
TGATAAGAAT CGTGTGGTA TTGCCAGCCT TGGTCACTAT GGAGAATCGT ATTCTCGTAG	5340
TGCTTCTCTT TGAATGCCTG TTCCAACATT GTTTGTAATT ATTCTAAAT AGGCGAACAA	5400
GAAAGATTAA AAGCAATAAT TTCGCTGTTA AAGCCATCTA AAAGTGGTGA TAAGTAAAGC	5460

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TTTTGAGTAC TTGCTGGAAT GGCAAATTCA GTCACATCTG TGTAGCACTT TTCCATTGTT 5520
TTAGAGCCTT CAAATTGGGC TTGAATGAGA TTCTCTGCCT TCTTACCAAC GTCTCCTTTA 5580
TGAGAAGAAT ATTTTCGTTT CTTCGCATT TTAGCTTGTA AATTGAGTAC TTTCATCAAG 5640
CCTTGAAGTC TTTTATGATT TACCAGATAA CCACGATTTC TTAGTTCTAA ATGAACCCGG 5700
CGATAAGCAT AATTTCCTT GTGTTCGATA AAGATGGATT GAATTTCACT TTTAAGCTCT 5760
TGGTCTTTAT CTGTTTTGTC TAGCTGTTTC AAGTGATAGT AGTAGGTCCA ACGAGCTAGT 5820
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CATTCTCCGC TCTCAGGTAC TCTCCCTCTT GTTTTCTCAA CAATAGTATA CCCGTTTTTC 6000
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CAATGGGTGT TTTTACTAG ACAAAAAAGA GTTTCCCTT TATGGTATAA GTGTAGAAAA 6240
AAACACAAAA AGAAAGGAAA CTCACATGAA CAGTTTACCA AATCATCACT TCCAAAACAA 6300
GTCTTTTAC CAACTATCTT TCGATGGAGG TCATTTAACC CAGTATGGTG GTCTTATCTT 6360
TTTTCAGGAA CTTTTTCCC AGTTGAAACT AAAAGAGCGG ATTTCTAAGT ATTTAGTAAC 6420
GAATGAMCAA CGCCGCTACT GTCGTTATTC GGATTCAGAT ATCCWTGTCC AGTTCCTCTT 6480
TCAACTGTTA ACAGGTTATG GAACGGAATA TGCTTG 6516

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(2) INFORMATION FOR SEQ ID NO: 106:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 14654 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 106:

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TTTTCAACCC ATATCGTGGC TCCTGAATAC TACTTACTGA CAACTATGCT ATCAGAGACT 60
TCTCTACTTG TTTTCTATAT CATTTCATC CATAGAAAAC AACTCATCCA CTGGGACAT 120
ATCTTTAGCT ATACTGTTTC ATACTCTCTC TTTTCACTT CTTTGTAGC AATTATTTC 180
CTGATTAATT TCGTGTATCC TGATAGATAG GTCATTAATT TGCCATTTT GATTAATACT 240
GGTTTGATTG TCTTGCTATC AGCTATCTCT TATATTAGTC TACTTGTCTT CACAAAAGAT 300

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AGCATTCTCT ATGAATTTT AAACCATGTC CTAGCCTTAA AAAATAAATT TAAAAAATCA	360
TAGGAGTTTA AAATGAAACA ACTAACCCTT GAAGATGCCA AACAAATTGA ATTAGAAATT	420
TTGGATTATA TTGATACTCT CTGTAAAAAG CACAATATCA ACTATATTAT TAACTACGGT	480
ACTCTGATTG GGGCGGTTTC ACATGAGGGC TTTATCCCTT GGGACGACGA TATTGATCTG	540
TCCATGCCTA GAGAAGACTA CCAACGATTT ATTAACATTT TTCAAAAGGA AAAAAGCAAG	600
TATAAGCTCC TATCCTTAGA AACTGATAAG AACTACTTTA ACAACTTTAT CAAGATAACC	660
GACAGTACGA CTAAATTAT TGATACTCGA AATACAAAA CCTATGAGTC TGGTATCTTT	720
ATCGATATTT TCCCTATAGA TCGCTTTGAT GATCCTAAGG TCATTGATAC TTGTTATAAA	780
CTGGAAAGCT TCAAACTGCT GTCTTTCAGT AAACATAAAA ATATTGTCTA TAAGGATAGC	840
CTTTTAAAAG ATTGGATACG AACAGCCTTC TGGTTACTCC TTCGACCGGT TTCTCCTCGT	900
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AAAACAATCG ATTTACCCTT TGAGAAATTA AGCCTTCCTG CACCTGAAAA ATTTGATACT	1080
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AAACTGATTG AGGGGGATTA TACAACTAC TAAGATAGAG GTTATTCAA AACATAATTT	2040
TAGTAGAAAA TGAATACAT ATTCACCAA TAAACGCAT CATATCAAGG TTTTGA AAAA	2100

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ACCTTGATAT GATGCGTTTT ATAATTTTAA AGACTTTTTT CTATAGTAGA TTGAAATAAG	2160
ATGCGAACAA ATCAATTAGA AAATTCAAAT TAATTTATAG AAATATTTTA GTATTCCTGT	2220
GTACTGTTCT AAATTCAGTC TGCTATATCT TATTTTTCTA TTTAAATCCG TCTGTAACA	2280
AAGCTACGAC TTTCAAGTAC CTTAAGCATG GCATTAGCTG TATCTAGCGC TGTGAAGAGG	2340
GGCACCCCGT GTTCAATGGC TGAACGACGA ATTTGCTCAC CATCTTCGTC AGCAGTTCGT	2400
TTTGTTCCTA CTGTGTTAAT GATAGCTTGA ATTCTTCCTT TGCGTACAAA ACTTGGGATA	2460
TCCTTATCGT CATCACCAAT CTTACCAACA GGTGGGGCTT GCAAGCCATG ACTAGCAAAG	2520
AAGGCTGCTG TCCCTTCTGT CGCAAGGATT CCATAACCAA TGTTTTGGAA ACGACGAGCC	2580
AAGTCAAGG CTTCTTCTTT GGCATCATCA GCGATGGTAA AGACGACATT ACCAAAAGTT	2640
GGCAAGTGTA GATAAGAAGC TTCAAAGGCT TTATAGAGAG CTTTTTCCAA AGTAGCATCA	2700
GAACCCATAA CTTACACCTGT TGACTTCATT TCAGGACCGA GCAAGCTGTC TACCTTAGCT	2760
AGTTTGGTAA AGGAGAAGAC AGGTGCCTTG ATATGAACAC GGGTGCTTTC AGGGTAAAGT	2820
CCATTTTGGT AGCCAAGTTC TGATAAACTT TGACCAAGAA TGAGTTTGGT CGCTACTTGA	2880
GCCATAGGAA TATTGGTTAC CTTAGATAGG AATGGAACAG TACGGCTGGC ACGTGGATTG	2940
ACCTCAATAA CGTAGACTTT TTCACTCTTG ATAACAACT GGATGTTTAT CATTCCAAGG	3000
CAGTGAAGAC CGATTGCTAA GCGTTTGGTG TAGTCTGCCA TGGTCTCCTG AACCTTTTGC	3060
GACAAGGTTT GTGGTGGGTA AACAGCCATT GAGTCACCTG AGTGGACACC AGCAGTTTCG	3120
ATATGCTCCA TGATACCAGG AATGAGTACA TTTTACCAT CTGAAATGGC ATCAACTTCG	3180
CACTCTTGCC CAACGATATA AGAGTCGACA AGAACTGGGT GGTCTGGACT AGCCTTAACA	3240
GCAGTTCGCA TGTAAGAACG AAGGTCTTCT TCGTTTTCAA CGATTTCCAT GGCACGTCCA	3300
CCAAGTACAT AAGATGGGCG GACAAGAACT GGAAGCCAA TCTTGCGAGC TGCAAGAGCT	3360
GCTTCTTCTT CATTGGTAGC CGTTTGTCTT GGTGGCTGTG GAATATCCAA TTCTTTGAGA	3420
GCTTGCTCGA AGAGGTCACG GTCTTCGGCA CGATCTAGGT CAGCAACCTG TGTACCAAGG	3480
ATGGTCACAC CTGCTTTTGC CAATGGCTCC GCAAGGTTGA TGGCTGTTTG ACCACCGAAC	3540
TGAACGATAA CTCCCTTTGG TTGTTCCAAG TCAATGACGT TCATAACATC TTGGAATGTC	3600
AATGGCTCAA AGTAAAGCTT ATCTGATACA GAGAAGTCTG TTGAAACGGT CTCTGGGTTT	3660
GAGTTCATGA TGATAGCTTC ATAACCAGCT GCCTGGATAG CCTTAACAGA GTGAACGGTT	3720
GCGTAGTCAA ACTCAACCCC TTGACCGATA CGGATTGGAC CTGAACCTAG GACAAGTACA	3780
GATTCTTTAT CAGATCTGAT AGATTCAATTT TCCCAACCAT AGGTGAATA GAAATATGGC	3840

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GTTTCGGAGT	CGAACTCTGC	CGCACAAAGTG	TCTACCATCT	TATAAACTGG	AACAATCTTG	3900
TTTTCCAAGC	GAAGTTGGCG	AACTTTATCA	TCAGTCGTTT	CCCAGAGTTC	AGCAATCTTA	3960
CGGTCTGAAA	AACCATTAAAG	TTTGGCTGTT	TTCAAACTT	CTAAATCTTG	TGGATGAGCA	4020
CCCAATTCTT	GCTCAATTTT	AAAGATATGC	AAGAGTTTAT	CAAGATAGAA	GATATCAATT	4080
TTTGTAAGCT	CTGCAATTTT	TTGAGGTGTG	TAGCCACGAC	GAATGGCTTC	TGATACGTAG	4140
AAGAGACGGT	CATCTTGGGC	TTTGACAACC	TTTTCAATCA	AGGCATCATC	AGAACTGCCT	4200
GCAAGTTCAG	GTATTTCAAT	GTGGTGCACC	CCAATTTCAA	GGGAGCGGCA	GGCCTTGAGA	4260
AGAGATTCCT	CGATGTTACG	ACCGATTGCC	ATGACTTCTC	CAGTCGCCTT	CATTTGTGTA	4320
CCGAGACGGC	GTTCAACCCTT	TTCAAACTTG	TCAAATGGGA	AACGTGGAAT	CTTAGCAACT	4380
ACGTAGTCAA	GGGCTGGTTC	AAACATGGCA	TAGGTTGAAC	CTGTAAGTGG	GTTTATAACC	4440
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GCTTTAGAAG	CAAGGGCTGA	CGAACGTGAT	ACACGAGGGT	TACTTCGAT	AACATAATAC	4560
TTGAAGCTGT	TAGGATCAAG	AGCTAGCTGA	ACATTACATC	CACCTTCAAT	CTTGAGGGCA	4620
CGAATAATGC	TCAAGCTCGC	ATCACGAAGC	ATTTGGTTTT	CATAGTCTGA	CATGGTTTGC	4680
GCAGGGGCAA	ATACAATGGA	ATCCCCCTGT	TGAATCCCAA	CTGGGTCAA	GTTTTCCATG	4740
TTACAAACAA	CCAAGGCATT	GTCAGCTGAG	TCACGCATCA	CTTCGTATTC	AATTTCTTGT	4800
AAACCGGCAA	TCGAACGCTC	AATCAAACAT	TGGGTAACAG	GTGACAATTT	CAAACCATTT	4860
TCAGTGATTT	CACGCAATTC	TTTCTCGTTG	GCACACATAC	CACCACCAGT	ACCACCAAGG	4920
GTAAGGCTG	GACGAACGAT	GACTGGGTAG	CCAATTGTCG	CTGCAAAGGC	AACTGCTTCT	4980
TCTACTGTGT	TAACAATTTT	AGATTCTGGA	ATGGGTGTTT	CAAGCTCTTC	CATCAATTGT	5040
TTAAAGAGGT	CACGGTCCTC	CGCTTGGTCA	ATGGCAGATA	ATTTGGTACC	CAGAAGTTCA	5100
ACGCCAAGCT	CGTCTAGGAT	ACCATTTTTA	GATAATTCCA	TGGCCATGTT	GAGACCTGTC	5160
TGACCACCGA	GTGTTGGTAG	CAAGGCATCT	GGACCTTCCT	TACGAAGAAT	ACGTGTCACA	5220
AACTCAAGTG	TAATCGGTTT	AATGTAAACC	TTGTCAGCAA	TTTCTTGTC	CGTCATGATG	5280
GTGTCAGGAT	TTGAGTTAAC	CAAAACAACC	TCATAACCTT	CCTCTTTCAA	CGACAAGCAA	5340
GCCTGAGTCC	CAGCGTAGTC	AAACTCAGCA	GCCTGACCAA	TAATAATCGG	ACCAGAACCA	5400
ATCACCATAA	TTTTTTGAAT	ATCAGTACGT	TTAGGCATAT	ATAAGATATT	AAGGGTGTCA	5460
AGCGGACAAA	GCTAAAATAG	GAGTTATGAC	GAAGAACTGT	CAGTTCTAGG	AATAACTATC	5520
TTTTTAGCAC	CGTCCGTAGC	CCGTATTGAG	TTGAGCAAAT	ACGGAGCACC	CTTCTCCTTT	5580
CTATTCGTG	CCTCTCAGGG	CGACATTAAA	TAAGATACAA	AGGACGAATA	GAAAGCGATT	5640



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GAATTTTAGG AAATCAAGGA AGGATTGACA ATCCAAGTTG GTTCTCTAC ATTCTGAGCT	5700
TTCCGTCGGT GTTCAGTTAC ATAAATTCTC CGACGAGCTT TTA CTCTGTTT TAGTTTGAT	5760
TGTTTAAAAA CTTCCATCAT CTCGATAAAC TCGTCAAATA GGTAGCTAGC GTCGTGTGGC	5820
CCAGGAGCTG CATCTGGGTG GTATTGAACA GAGAAAGCAG GTTGGTATCT GTGGCGCACA	5880
CCTTCCACTG ACTTGTCATT GATTTCTTCG TGGGTAATAA TCAAGTGCTC TGGCAAATCC	5940
TCGCGGCTGA CTGCATAACC ATGGTTCTGG CTGGTGAAGT CTACTCGTCC TGTTGCGATT	6000
TCACGTACCG CATGGTTGAA TCCACGGTGG CCAAACCTTCA TCTTATAGGT CTTAGCCCCG	6060
TTTGCCATTG CAAAGAGTTG GTGTCCCATTA CAAATACCAA AGATTGGAAT TTTTCCTTGT	6120
ACACCGCGAA TCATGTCGAG TGCTTGTTGA ACGTCTTCTG GGTACCTGG ACCATTTGAC	6180
AACATAAATC CGTCAGGATT GAGATGGAGA ATTTCTTCAG CCGTGTCTGA ATAAGGAACA	6240
ACTGTACAGT TACAGTTGCG TTTAGAAAGT TCACGTAGGA TTGAGTGCTT GAGACCAAAG	6300
TCCACTAGCA CCACGCTCAA ACCAACTCCT GGAGCTGGAT AAGACGTTTT AGTAGAAACC	6360
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CTGTCCCCAA CATGGGTCAA GGTGTCACGC ATAGTACCAT GCTTACGGAT AATCTTGGTA	6480
AGAGCACGCG TATCAATTCC TGAAATCCCT GGAATTTTCT TGGCTTTCAA AAATTCATCC	6540
AAGGTCATTT GGTGCGCCA GTTGCTAGCT CTACGCGCTT CTTCAAAAAC AACGACTCCC	6600
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GGATAAGTAA AGGTCAAGAT TTGTCCATTA TAAGACTGGT CTGTAATGGA TTCTTGGTAG	6720
CCGGTCATCC CTGTATTAAA GACGATTTCTG CCTGTTACAT CAATATCTGC TCCGAAGGCC	6780
TTGCCTTCAA AAATGTGCC ATCTTCTAAT ACTAGAATTC TTTTGTCTAT ATTTTCACCT	6840
CTCGTGGACG CTCACTGGCG TCTTTTAACG TCTTGTGTTT TAGTTGGCGT TTCTACTCGC	6900
TAGTACGGAT TCTAAGATTG CCATTCGAAC AAAGACACCA TTGGTCATTT GTTGACAAT	6960
CCGTGATTTT GGTGCTTCAA CCAAGTGGTC TGCTATTTCT ACATCACCAT TGATTGGAGC	7020
TGGGTGCATG AGGATTGCTG TTTCTTTCAA ACGATCGTAA CGTTCTTGAG TCAAGCCATG	7080
TTGGGCATGG TAGTCTTCTT TTGAAAATAC AGCTCCACTA TCATGGCGTT CGTGTTCAC	7140
ACGAGAAAC ATCATGACAT CAACCTGATC AATGATTTCA TCAATGGTTA CAAACTGTCC	7200
ATAGTCTGCA AACTCTTGAC TTCTCCATTC CTCAGGTCCA GCGAAAAAGA GTTCAGCTCC	7260
CAACCGTTTC AAAATCTGCA TATTGGATTT GGCAACGGT GAGTGGTCCA AGTCACCTGC	7320
AATAGCAACT TTAAGACCCT CAAAGTGGCC AAATTCCTCA TAAATGGTCA TCAATCAAG	7380

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CAAGCTCTGG CTAGGGTGTT GGCCCGAACC ATCTCCACCA TTGATGATGG AAGTCGTAAT	7440
CGTTGGACTA GCAATCAATT CTCTATAGTA GTCGACCTCT GGATGGCGAA TCACACAGAC	7500
ATCCACTCCT AAAGCAGACA GAGTCAAAAT GGTGTCATAA AGTGTCTCAC CCTTATTAAC	7560
CGAGCTAGTC TTCACATCAA AGTCAAGTCG TTCCAATCCA AGTTTAATCT CTGCGACTTC	7620
AAAGGACTTA TGTGTCCGTG TAGAATCCTC AAAGAAGAGA TTGGAAACAA TCGGATGGTC	7680
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TTGATCGACA GTGAGGTCTT CCATGGACAC CACATGGTTC AATGCTTGTT GATTTTCTGA	7800
CATGGCTACT CCTTTAACTT TCTAAGCTTC TTCAGTAATC AGAACTCTGT CTTGGTCATC	7860
AAGTTCTGTC ATCTCTACGA TGATTTCTTC AGAACGACTG GTTGGGATAT TTTTCCAAAC	7920
GTAATCTGGA CGGATTGGCA ATTCTCTATG TCCACGATCG ACTAGAACTG CTAAACTCAC	7980
ACGCGCAGGA CGACCATGAC CGACAATATT ATCAATAGCA GCACGGATGG TACGACCTGT	8040
ATAGAGCACA TCATCCACCA AGATAACTTC GCGGTCTGTC ACATCGACAG AAACCAAAGA	8100
AGTATCTTCT CCACTTTTAA CATCATCAGC GAAAGGTTTA GTATCCAATT CCACAACAGG	8160
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GCCTCACGGG ACAGGTTTAA AGGAATATTT AGTTATCATT TACTATAGCA CAAAGCATGC	8520
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CTCAAGTGGC GTCGCTGATT TTTTGACAAT ATCGTGGTGT TTGCAAATAC GCTCCACAAG	8760
AGTATCCACT GCAAAGGCTG GAATTCCTAAA TCCTACACTC ATGACAACAT TGGCTGTCTT	8820
GCGACCAACA CCTGCCAAAC TCTCCAATTC TTCACGTGTC TGAGGGACTT GACCATCAAA	8880
ATCGTCTAGT AACTGTTGGG CACATTTTTT AAGGAATTTA GCTTTATTCC GATACAATCC	8940
CAAGCGAGAA ATATGTGAAG CAATCTCACT CTCTGTGCT ACAGACATAG CTTGGGGTGT	9000
TGGAAAGGCA ACAAAGAGAC CTGGTGTGGC CTTATTTACC GCTGCATCTG TCGTCTGGGC	9060
TGATAACATG ACCGCAACCA GGAGTTCAAA ATGATTGGTA AAATCAAGAC TAGGCTTGGC	9120
ATCTGGGAAG AGGGCAATGA TTTCTTCTAG CACCTTTCGT GCTCGTTTTT TTGACAAGAC	9180

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CATTATTCAT CTCCGTCAA TAGTCCTTGT AAGCCAGCAA AAGGACTGTT TTCTTCTTTC	9240
TTTACTGCTT TTTGAGCTTG GTATTCTTCC TCTGTCATGA TTTGCCAGTC ATTTCTGAG	9300
ATAAATCCTT GACCAGCTTC TTCTTCAGCC GTCAAGACCT TGATAGGAAT GTTTAGCAGG	9360
ATATTGTCTG ATACACTCTC AGCAAGGTCA AGCTCCCCAT TTTCGATGGG CAAGACCAAG	9420
TCATCATCTA AAACCTCTTG ATCTAGCTGG TTAGTTGCGC CTTCCATGAA AACTTCCGTG	9480
ACTGGATAAG ATTCAACTAA CTCAACTGGC TCCATACTGC GACTCGACGC AAGAACAATG	9540
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GCACACCAAA CTTTGTAAAT AAAATTCAAA ATTTTAACAT ATTTACTATG ATAGTTTTAT	9840
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GGTACGGCAG ATGATATTCG ACTACAAGAG CTGCTAAACA CTACTATGCA AGAGCTCAAA	10020
AAAACGGAAC AGTTGAACAA CAGTATCTTA ATTGATCTTG AGAAATTTTA CCAACCTACC	10080
AGTCTTCTGA TTGGACTGGG TAGCCTAAAA CTAAACGATC AAGCACGCAC TGCTTGGCGA	10140
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TTCTGGCATG TTAATAGAGT TTTTTTGACA TAGACTTTGG GCTCTACTAG GTAAAGTAGA	10440
GCTTTTGTGTT ATGCACTATG AACATTCTAG AAAGGGAAAT CATATGATAA AATCAATCA	10500
TCTAACCATC ACACAAAACA AAGATTTACG AGATCTTGTA TCTGACCTAA CCATGACCAT	10560
CCAAGACGGG GAAAAGGTTG CTATTATTGG TGAAGAAGGA AATGGCAAAT CAACCTTACT	10620
TAAAATTTTA ATGGGGGAAG CTTTGTCTGA TTTCACTATC AAGGGAAACA TCCAATCTGA	10680
CTATCAGTCA CTGGCTTACA TTCCTCAAAA AGTCCCTGAG GACCTAAAAA AGAAAACCTT	10740
ACACGACTAC TTCTTTTAG ATTCTATTGA TTTAGACTAC AGTATCCTCT ATCGTTTGGC	10800
GGAGGAATTG CATTTTGATA GCAATCGTTT CGCAAGTGAC CAAGAGATTG GCAATCTATC	10860
AGGGGGCGAA GCTTTGAAAA TTCAGCTTAT CCATGAGTTA GCCAAACCCT TTGAGATTCT	10920

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ATTTTGTAGAT	GAACCTTCAA	ATGACCTAGA	CCTTGAGACA	GTTGATTGGC	TAAAAGGCCA	10980
GATTCAAAAG	ACCAGGCAAA	CCGTTATTTT	CATTTCCCAT	GATGAAGACT	TTCTTTCTGA	11040
AACGGCAGAC	ACTATTGTTC	ACTTGCGACT	GGTCAAACAC	CGTAAAGAAG	CGGAAACGCT	11100
AGTAGAGCAT	TTAGACTATG	ATAGCTATAG	TGAGCAGAGA	AAGGCTAATT	TTGCCAAACA	11160
AAGTCAGCAA	GCTGCTAACA	ACCAAAGAGC	CTACGATAAA	ACCATGGAAA	AACATCGGAG	11220
AGTTAAGCAA	AATGTAGAAA	CTGCGCTTCG	AGTACCCAAA	GATAGTACTG	CCGGTCGCCT	11280
ATTGGCTAAA	AAGATGAAAA	CTGTCCTCTC	ACAAGAAAAA	CGCTACGAAA	AGGCAGCTCA	11340
GTCCATGACT	CAAAAGCCAC	TTGAAGAGGA	ACAAATCCAA	CTTTTCTTTT	CAGACATCCA	11400
ACCATTACCA	GCTTCTAAAG	TCTTAGTCCA	ACTGGAAAAA	GAAAATTTGT	CCATTGACGA	11460
CCGAGTTTGT	GTTCAAAAAC	TACAACCTAA	TGTCCGTGGC	CAAGAAAAAA	TCGGTATTAT	11520
CGGGCCAAAT	GGTGTGGGA	AATCAACTCT	GTTAGCCAAG	TTACAGAGAC	TTCTGAATGA	11580
TAAAAGAGAG	ATTTCACTTG	GTTTTATGCC	ACAAGATTAC	CACAAAAAAC	TGCAATTGGA	11640
TTTATCCCCA	ATAGCCTATC	TCAGTAAAAA	TGGGGAAAAA	GAGGAACTAC	AGAAAATCCA	11700
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TCTCCTGCTG	GATGAACCCA	CACGAAACTT	TTCTCCCACT	TCTCAACCCC	AAATCAGAAA	11880
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AGAAGTCTGC	TCGATCATCT	ATCGCATGAC	AGAACACGGT	TTGAAGCTAG	TTAATTTAGA	12000
AGATTTATAA	ATTTGCAACA	TAGCAAAAAT	CCAGAGACGA	CCTCTGGATT	CTTTTACATC	12060
TGTTTTAAAC	GTTCAATCCG	TTCTGAGATA	GGTGGGTGGG	TATAAAAGAG	TTTTTGAAC	12120
CCCCCACCTT	TCTTAGGATC	ATTGATATAA	AGGGCACTGC	TAGCATCATC	GACGTGGCGA	12180
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ATTTCAAGAC	CATTTCCATC	TCGGTCATCA	TCACTTCGTC	TGCGACCTGC	TCCACCCAC	12420
CACATCATAC	GACCTGCCAT	ACTAGAAAGC	ATGGTGATAG	CACTAGCAAG	GGCAACTGCA	12480
ATAGTCGAAA	TACGGATATC	ATAATTACGA	ATATGACTGA	CTTCATGTCC	CATAACAGCT	12540
TCTAGTTCTT	CACGATTCAT	GATAGCTAGT	AGACCTGAAG	TCGCAGCAAC	AGCCGCATTT	12600
TGAGGATTAG	AACCTGTCGC	AAAGGCATTT	AAGGCTGGAT	CATCAATGAT	GAAAACACGG	12660
GGCATAGGAA	TCTGAGCGAC	CAGAGCCATA	TCTTCCACTA	CATGGTAGAG	GTCTGGTGCC	12720

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GTTTGCTCAT CCACCTCACC CGCTCCATTC ATGGACATGA CAATCTCTGT CGATTGAAAA	12780
ATCATAGACA AAGCGTAGAT AAAGCCGATA ATCAGTGCAA TAACCAAACC ACCAAGTCCA	12840
GATCTTATAA AGAGATAACC AACCCGATAA CCAACAAGAG CTAAGAGTAG GAAAAATACC	12900
AGCAACAAAA TCCAGGTTTT TCGTTTATTG CTTGCAATTT GATCAAACAA CATCTTAGTC	12960
ACCTAAACCG CTAATAATCAA CTTTAGGAAC CGACTTTTCC TCTTCAGGTG TTTGAAGGAA	13020
ATCTGCCGCT TTAAATCCAA ACATTCCAGC GATAATATTG CTCGGGAAAG TTTCTAATTT	13080
TACATTGTAG TTGCTGACAA CACTGTTATA GAGTTGACGA GAGTAAGAAA TTTTATTTTC	13140
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GCTTTCTGCA ACTGCAAAAA TACCTGAAAC CTGACGAGTG AGGGCATCAC TGGCTTTTCAT	13260
AGCTTCTGCT GGTGAAGTCG CTGCCGCCAC TTGGTTACGT AGTTCTGCCA CCTTTTCAAG	13320
GGTAGAACCT TCATATTTGG CATAACCTTT TACAGTCTCA ATCAAGTTTG GCAAGAGGTC	13380
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CGAATAGAGA TCCGCGCTAT ATCACAGTGG TAGAAAAGAA AAAAGAAACA CCAAATAAAT	14280
ATCCACGTAA GGCTGGTATG CCAAATAAAC GCCCACTTTA AATTTTTTAG TAAACAAATG	14340
TTTACAAAAT CAGCCTCGCT CTTTTATTTC TAGGCTCGGG AAAAAATGAT TTACAAAATC	14400
AGCCTCGCTC TTTTATTTCT AGGCTCGGGA AAAAAATGATT TACAAAATCA TTTTTTCTG	14460

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CTATACTATC CTAAGCAAAG GTTTTAAATG TCATCCCGTG AGGTGACGAA GACGCAGAAA	14520
TATTTAAAC TCTTTAAAT CTAATTTTA AAGAAGTCTT ACTCTGAGGG CCTATTGCTG	14580
TAAAATAATG GGCTCTTTT TGATGCCCAA AAGTGAGGTT TATATGAAAC AAGAATCAAC	14640
TGTTGATTG TTAC	14654

## (2) INFORMATION FOR SEQ ID NO: 107:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 6405 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 107:

AGAAAAATCT GCTTTACAGA AAATAAAAT AATAGGAGAA AATCTATGTC AGATTGAAA	60
AAATACGAAG GTGTCATTCC AGCCTTCTAC GCATGTTATG ATGATCAAGG AGAAGTAAGC	120
CCAGAACGTA CGCGTGCCTT GGTTCATAC TTCATTGATA AAGGTGTTCA AGGTCTTTAT	180
GTCAATGGTT CTTCTGGTGA ATGATCTAC CAAAGCGTTG AAGATCGCAA GTTGATTTG	240
GAAGAAGTCA TGGCGGTAGC AAAGGTAAAT TGACCATTAT TGCCCATGTT GCTTGCAATA	300
ATACTAAAGA TAGTATGGAA CTTGCTCGCC ATGCTGAAAG CTTGGGAGTA GATGCTATTG	360
CAACGATTCC ACCAATTAT TTCCGCTTGC CAGAATACTC AGTTGCCAAA TACTGGAACG	420
ATATCAGTTC TGCAGCTCCA AACACAGACT ACGTGATTTA CAACATTCCT CAATTGGCAG	480
GGGTGCTTT GACTCCAAGC CTTTACACAG AAATGTTGAA AAATCCTCGT GTTATCGGTG	540
TGAAGAACTC TTCTATGCCA GTTCAAGATA TCCAAACCTT TGTCAGCCTT GGTGGAGAAG	600
ACCATATCGT CTTAATGGT CCTGATGAGC AGTTCCTAGG AGGACGCCTC ATGGGGGCTA	660
GGGCTGGTAT CGGTGGTACT TATGGTGCTA TGCCAGAACT CTTCTTGAAA CTCAATCAGT	720
TGATTGCGGA TAAGGACCTA GAAACAGCGC GTGAATTGCA GTATGCTATC AACGCAATCA	780
TTGGTAACT CACTTCTGCT CATGGAAATA TGTACGGTGT CATCAAAGAA GTCTTGAAAA	840
TCAATGAAGG CTTGAATATT GGATCTGTTT GTTCACCATT GACACCAAGT ACTGAAGAAG	900
ATCGTCCAGT TGTAGAAGCG GCTGCTGCCT TGATTGCTGA AACCAAGGAG CGCTTCCTCT	960
AATCTAAAAG GAGGTATTTA TGACATATTA CGTTGCAATT GATATCGGTG GAACCAACAT	1020
CAAGTATGGT TTGGTTGATC AAGAGGGGCA ACTTCTTGAA TCGCATGAAA TGCCAACTGA	1080
GGCGCATAAG GGTGGACCTC ATATCTTACA AAAGACCAA GATATCGTAG CTAGTTATTT	1140
AGAAAAGGC CCAGTAGCAG GTGTTGCCAT ATCTTCTGCT GGGATGGTGG ATCCGGATAA	1200

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GGGTGAGATT TTCTATGCTG GGCCGCAAAT CCCTAACTAC GCAGGCACCC AGTTCAAAAA	1250
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TCTTGCTGAG GCAGTATCTG GTTCAGGCAA GGGAGCAAGT GTGACACTTT GCTTGACCAT	1380
TGGAACCGGT ATCGGTGGTT GCTTGATTAT GGATAGGAAA GTCTTCCATG GTTTTAGCAA	1440
TTCAGCCTGT GAAGTCGGGT ATATGCATAT GCAGGATGGA GCTTTTCAAG ACTTGGCTTC	1500
TACAACAGCT TTAGTGAAAT ATGTAGCTGA AGCCCATGGA GAAGATGTTG ATCAGTGGAA	1560
TGGCCGTAGA ATTTTCAAAG AAGCCACTGA AGGAAACAAA ATCTGCATGG AAGGTATTGA	1620
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AGTGTTTATT CTTGGTGGTG GTATCATGGG GCAAGAGGCT ATCCTCAAAC CTAAGATCCG	1740
TACAGCCTTG AAAGAGGCTT TGGTACCAAG TTAGCAGAA AAAACACGAT TAGAATTGTC	1800
CCATCACCAA AATACAGCAG GGATGTTGGG TGCATATTAT CATTTTAAGA CAAAACAATC	1860
CTAGTTTGGC TCAGCCAAAC TAGGATTTTC TTACACGTTT TTGTCTACGA TAGCCGTTGA	1920
GTTTTTTATT TTCCCAGTAG CTATTAAAGA TTTTTTCCTT GCTTTCGCGA TTGATTTCCA	1980
AAAAGTAGGC ATAAATCAAA TCGATAAAGA AGAGCATAGG AAGTTGAGCG GATATTCGTT	2040
GGATATAGGA GGGTTGGCTG TGGGTGGCTA CAAGAACAGT CTCTGTATAG GTCTGGCTAT	2100
CTTTATTGGG AACACTTGTA AAGAGTACAG TCTTTGCCCC CATCTCCTTA GCATCTAATA	2160
GACTATCTAA AATAGAAGGA GTTGAGCCTG AAAGTGAGAA GCCCAGTACT AGACAATTTT	2220
CATCCATGAT GCTGGTTGTC CAGGCAAAGC CGTCTGGTC TGTCAAAGCT TCGCAGACCA	2280
CACCTAGTCG CATAAAACGT AATTTCATTT CACGGGCGAC GAGGCCAGAA CTCCTGTTC	2340
CAAAGAAGTA GATACGCTCA GCATCTTCGA TTAGCTGGGC AATTCGTTCT AGTTGGATTT	2400
CGTCAATCAA GTCTTGTGTT TGTTCCCTCA TATTGCTATA ACTTCTGAGG ACTCGTTTGG	2460
TCAGTGGACT GTGCTTGGAG ACTTGGTTGG CTTGATTTTC TGCCTGATGT TGGTATTGGA	2520
AAATAAATTC TCGGTAGCCA GTAAAGCCAC ACTTTTtagc AAAGCGGGTC AAAGCAGCTT	2580
GAGAAATATG TAATTTTGG GTGACTTGTT GAGAAGATAA ATCATCTGTA ATCGTTTCAG	2640
CTTGCAAAAA ATAGCGAGCG ATTTCTTGTT CTAGGTCTGT CATTTCTTCA AAATGTGAAT	2700
CAATGATAGT TGCGATATCT GGTTTGTCCA TAGGGAAAGC TCCTTTACAT GAGTCATACT	2760
GGAAGACTAG ATCAGAGAAT AGTCACACTT CATTATAACA CATAATATAA GGATAGATAA	2820
ATAAAAACGC ATCTCTGTTT TAAAAACGAA AAAATCGAAA AAGCTTCTCT CTTTCCATA	2880
ATTTTCTACT CAAATTGTGG TACAATTAAG AGTAAGATTT TAAGTTAGAA ATGAGACTGA	2940

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TTGTATGAG AAAATTAAAC AGCCATTCTGA TTCCGATTCTG GCTTAATTTA TTGTTTTCAA	3000
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TGGGTGACTT GATTAGCAA CTGCAACCGA CAGAGATGAA TAAGGTCAAT ATATCCGACT	4680
CCGATATGAG CATCTGCAC CAAGGTTTTT ATCAGGTTGC CCATGGTACT AGTGGATTGA	4740



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CAACTGGACG TGCCTTTTCA AATGGTGCCT TGGTATCCAT TAGCGGAAAA ACAGGTACAG	4800
CCGAAAGCTA TGTGGCAGAT GGTGAGCAAG CAACCAATAC CAATGCCGTG GCCTATGCCC	4860
CATCTGATAA TCCCCAAATC GCTGTGCGAG TGGTCTTTCC TCATAATACC AATCTAACAA	4920
ATGGTGTAGG ACCTTCCATT GCGCGTGACA TTATCAATCT GTATCAAAAA TACCATCCAA	4980
TGAATTAGAA AGGAAATTAT GCTTTATCCA ACACCTATTG CCAAGTTGAT TGACAGTTAT	5040
TCTAAGTTAC CAGGTATCGG GATTAAGACG GCTACGCGTC TGGCCTTTTA TACGATTGGG	5100
ATGTCTGCTG ATGATGTCAA TGAATTGCA AAAAACTCC TTTCTGCTAA GAGAGAATTG	5160
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CCGACTCGTG ACCAGACAAC AATTTTAGTT CTTGAGGATA GTAGAGATGT GGCAGCCATG	5280
GAAAAATATCC AAGAATACCA TGGACTCTAT CATGTCTTC ATGGCCTCAT TTCTCCTATG	5340
AATGGTATCA GTCCGGACGA TATCAATCTC AAGAGCCTTA TGAATCGTCT TATGGATAGT	5400
GAGGTTTCAG AAGTGATTGT GCGGACTAAT GCTACAGCGG ATGGTGAAGC GACTTCCATG	5460
TATCTTTTAC GTTTGCTCAA GCCGGCTGGT ATCAAGGTTA CGGCTCTAGC ACGAGGTCTC	5520
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CGGACAGAGT TGTAAGTGTA GGCAAATTTA CGAACTCCAT TCATTTATAA AAAATCAAAG	5640
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AAGTTTTAAA AAACCAAGCA AATATGATAT ACTAAAGAGC GAGTATTCTA GTAGAATTAG	5760
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AGTCTCTGTC CTTTCAGCTG AGAGTGTCTAT GCGTGCGGTC GATTACGACC GTTTCACAGT	5880
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TCCGGGGCAA GAAGACCGTC TCATGACCAA TGAAACCATT GATTGGGATA AGAAAGTTGC	6000
ACCAAGTGCT ATCTACGAAG AAGGTGCAGT GGTCTTTCCA GTCCTTCACG GGCCAATGGG	6060
AGAAGATGGC TCTGTTCAAG GATTCTTGA AGTTTGTAAA ATGCCTTACG TTGGTTGCAA	6120
CATTTTGTCA TCAAGTCTTG CCATGGATAA AATCAGGACT AAGCGTGTTC TGAATCTGC	6180
TGGTATTGCC CAAGTTCCTT ATGTGGCTAT CGTTGAAGGC GATGATGTGA CTGCTAAAAT	6240
CGCTGAAGTG GAAGAAAAAT TGGCTTATCC AGTCTTCACT AAGCCGTCAA ACATGGGGTC	6300
TAGTGTGCGT ATTTCTAAGT CTGAAAACCA AGAAGAACTC CGTCAAGCCT TAAAACTTGC	6360
CTTCCGATAT GACAGCCGTG TCTTGTTGA GCAAGGAGTG AATGC	6405

(2) INFORMATION FOR SEQ ID NO: 108:

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- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 11309 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 108:

CGAGCTCGGG TACCGGGATT TTAAGGAGTT TGATATGTAT AACCTATTAT TAACCATTTT	60
ATTAGTATTA TCTGTTGTGA TTGTGATTGC AATTTTCATG CAACCAACCA AAAACCAATC	120
CAGCAATGTA TTTGATGCCA GTTCAGGTGA TTTGTTTGAA CGCAGTAAAG CTCGCGGTTT	180
TGAAGCTGTA ATGCAGCGTT TGACAGGGAT TTTAGTCTTT TTCTGGCTAG CCATTGCCTT	240
AGCATTGACG GTATTATCAA GTAGATAAGA AAATAATGGG CAGGACTAGG TCTTTGCCTC	300
TTTTTATTTT TAAAGGATGT TTGAGAAGGT TTTACAGTAA AAGAAAATTA AAAAATCTAG	360
AAAGAAAATA TGAAAGATAG AATAAAAGAA TATTTACAAG ACAAGGGAAA GGTGACTGTT	420
AATGATTTGG CTCAGGCTTT GGGAAAAGAC AGTTCCAAGG ATTTTCGTGA GTTGATTAAA	480
ACCTTGTCCT TAATGGAAAG AAAGCACCAA ATTCGTTTTG AAGAAGATGG TAGTCTGACA	540
TTAGAAATTA AGAAAAACA TGAGATTACC CTCAAGGGGA TTTTTCATGC CCATAAAAAAT	600
GGCTTTGGCT TTGTTAGTCT GGAAGGCGAG GAGGACGACC TTTTGTAGG GAAAAATGAT	660
GTCAACTATG CTATTGATGG TGATACCGTC GAGGTAGTGA TTAAGAAAGT CGCTGACCGC	720
AATAAGGGAA CAGCAGCAGA AGCCAAAATT ATTGATATCC TAGAACACAG TTTGACAACA	780
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GTGCCTGATG CTCCGTCTCA AAAGGATATG GAAGGTCGTC TGGATCTAAG AGATGAAATT	1140
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TATACCATTA CACAAACAGT TATCAAGACC AGTTTTCGTA TGACCTATAG CGATGTCAAT	1500

795

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GAAACAGTTG CCGAACATTT CAGCAAGTTG GATTTGCCCTT TTATCTATCG AATTCACGAG	1800
GAGCCTAAGG CTGAAAAGGT TCAGAAGTTT ATTGATTATG CTTCGAGTTT TGGCTTGCGC	1860
ATTTATGGAA CTGCCAGTGA GATTAGTCAG GAGGCACTTC AAGACATCAT GCGTGTGTGT	1920
GAGGGAGAAC CTTATGCAGA TGTATTGTCC ATGATGCTTC TCGCTCTAT GCAGCAGGCT	1980
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ACCAGTCCAA TTCGTCGTTA TCCAGACCTT CTTGTTTACC GTATGATTCG GGATTACGGC	2100
CGTTCTAAGG AAATAGCAGA GCATTTTGAA CAAGTGATTC CAGAGATTGC GACCCACTCT	2160
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CGCGCCTTAC GAAGAGGGCA ATATCTGGAA CCAGGAACCA GAACGTCGTC GTAAACTCCT	2940
GCTCCATAAA AAGCAAATTC AAAAATTGGA ACAAGAGATC AAAGGGACAG GAATGACCTT	3000
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AGGGAAGCAT GACTATGACA AACGGGAGTC TATCAAACGT CGTGAGCAAA ATCGAGATAT	3120
CGCGCGTGTG ATGAAAGCTG TTAATCAGCG ATAAAAAGAG GAATTGAAAA TGGAAAAATT	3180
AGTTGCCTAT AAACGCATGC CTTTGTGGAA TAAACAAACA ATGCCTGAAG CTGTTTCAGCA	3240

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AAAGCACAAT	ACAAAAGTTG	GGACTTGGGG	GAAAATTACT	GTCTTGAAGG	GAGCTCTCAA	3300
GTTTATTGAA	TTGACAGAAG	AAGGGGAAGT	TCTAGCTGAA	CACCTCTTTG	AAGCAGGGGC	3360
AGACAATCCA	ATGGCCCAAC	CTCAAGCCTG	GCACCGAGTG	GAAGCTGCCA	CAGATGATGT	3420
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CAATCCTGTT	CATTCAGAGG	TCCTAGAGGC	CATGCAGACA	GTGAAACAAG	GGAAAGCTTT	3540
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AGATTTGGAC	ATGCCTGTTG	GCCTTTACGA	TATCAATTCA	GCTAGCATTG	AACAAGAATA	3720
TGATTTTATC	GTTTCAACAG	TTGTTCTCAT	GTTTCTACAA	GCCGACCGCA	TTCCAGCTAT	3780
TATTCAAAAT	ATGCAGGAGA	AAACCAGTGT	TGGTGGTTAC	AACCTTATCG	TTTGTGCCAT	3840
GGACACGGAG	GATTATCCTT	GCTCGGTAA	CTTCCCATTC	ACCTTTAAAG	AAGGAGAACT	3900
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GATATAGAAA	AGGAGGGAAT	TCATGTTTGT	TGCGAGAGAT	GCTAGGGGAG	AATTGGTAAA	4140
TGTGTTAGAG	GATAAACTTG	AGAAGCAAGC	ATACACCTGC	CCAGCTTGTG	GAGGCCAGCT	4200
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CCAGATTGAA	CAAGACTTGA	CTAGCTATTA	TCAGCACTTT	TATACCTATT	ACCAAAAAAA	4980
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CTACCTCAAG GCAGGTAAGT CGGACTATCC ACTTAATGTC ATGAGAAAAG CTGGTGTTGA	6780

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TATGGAGAAG GAAGACTACC TCAACGATGC CTTTGCAGTC TTTGAACGCC GTTTAAATGA	6840
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ACCAAGCCTT CCAAAATATC TTTACCCAAT ATATCGGTGG TGGAGATTCA AGCTCAAGCA	8580

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GTAGTACATC	AAACGAATAG	TCCAAATCAA	TGAGTCAGGG	AAAAAACTCG	ACTTCAGGAA	8640
AAAATGAAGC	AAACATTCCC	ACAATAAAAC	GCATAGTACA	AGGTTTGTAC	TGCCCCCACA	8700
AAAGTTAGAC	AATTAATTTA	TCCGAAGGAT	TTAGTTCTGT	ATTGCACAGA	GCTAAGTCCT	8760
TTTAGTTTTA	TCTTAATTCT	CTTATTGTTG	TAATAATCAA	TATAGTCTAT	AATGGCTCGT	8820
TCCAATTGAT	TAAGTGATTT	AAATGTTTTC	TCATAGCCAT	AAAACATTTT	GGATTTTAAA	8880
ATGCCAAAGA	AAGATTCCAT	CCTACCGTTG	TCTTGGCTGT	TGCCCTTACG	TGACATGGAT	8940
GCTTGAATTC	CCTTACTCTC	TAGGAAGCGA	TGATAAGAAT	CGTGTTGATA	TTGCCAGCCT	9000
TGGTCACTAT	GGAGAATCGT	ATTCTCGTAG	TGCTTCTCTT	TGAATGCCTG	TTCCAACATT	9060
AACGATCAAT	CAATTTAATC	ATGTACCTAA	GATTAGAATT	GTTTATCCCA	AATTTATTTG	9120
AAAGCTTCTC	TAAGCTATAT	CCTTGTTTTT	TAAGTTCATA	GATCTGAACT	TTATCATCAT	9180
AAGTTAATTT	CATAATAAAA	ACACCCCAAA	AGTTAGATTT	TTTCTGTCTA	ACTTTTGGGG	9240
TGTAGTTCAT	GTACACCTGA	TATGATGCGT	TTTATAATTT	TAAAGACTTT	TTGACCAGCC	9300
TCATTTTTTT	AACTTGATAC	TCAGTGAAAA	GCAAAGATTA	AACTAGGAAG	CTAGCTGTAG	9360
GCTGCTCAAA	GAACAGCTTT	GAGGTGTAG	ATAAACTTG	TGAGGTCACC	AACATATATA	9420
ATGTGAAGCT	GACGTGGTTT	GAATAGATTT	TAGAAGAGTA	TGAGTCTGGA	AGTTTTAATG	9480
GATAATGCAA	GATTCCATAG	AATGGGTAAG	CTAGAGTTCT	TATGTGAAGA	GTTTGGGCAT	9540
AAACTTTTAC	CTTTTCCTCC	CTACTCATCT	TAGTATAGAA	AAGTGAATCT	GAAATAGTAC	9600
ATAACTGCTT	CTAAAACATT	CTTATAAATT	GATTTAAATT	CTCAAATCAT	ATTATTCAGT	9660
TCTTATTTCA	TTTTGTTCTA	CAATCCTGTT	GAGAAGACAC	GTGTTTCATAT	CAAAAAGGTA	9720
TTGGCAAGTT	GCAATACCTT	TTTACGAGGC	TCTGTTGTCT	TATTTTTGTT	TCAACTGACT	9780
ATATCTCCTA	TGGTTCTAGT	TCAGAAAGGCT	AGGCTATAAT	TATGATTGAT	AAGAAGTATC	9840
ATTCCAAGTA	TTGGGAGTGA	ATGTTTCAAA	ATCATGGGTT	TCTATAATGG	TCAGGCTGGC	9900
ATTTGCTAGA	CCGCCATCTT	TACGAAGAAG	TGTTTCTTTA	TAGCCTAGGA	GAGTACGAAG	9960
ACTGGCAGTA	AGATTGGCGC	CGTGTCGGAC	AATTAGAATA	CGTTCAGCTG	GACTATCTTT	10020
TAATGATTTG	ATAAATTGGA	TGGTCCGTTG	AGTTGTACTA	TAGAGGGATT	CGGCTCCGAA	10080
CATTCGAGTG	TCAAATTGAG	CAAGATTTGA	ACGAAAAGCC	TGGATTTGTT	GCGGGTAAAT	10140
AGCTTCCAAG	GTTGCAATTT	TCAAACCTTC	TAACTTCCCA	AGTTGCCATT	CACGGAGATT	10200
AGGAACGATT	TCTAAAGAAC	AGGGGGTATA	GAGTTGACTT	TGGATAATCT	CAGCAGATTT	10260
GACCGCTCGA	GGTAAATCAC	TTGAATAAAT	CTGATCAAAA	GGAATTTTCT	TGAGATACTG	10320

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ACCAAGTCGT TTTAGGGTTT CAATGGATTC AGGAAGAAGA GGAGAATCAC CACTAGCACC	10380
TTGAAAACGA CCTTCTTGGT TCCAGAGGGT ACGACCGTGG CGGACAAAGT AGAGTTTCAT	10440
TACTTGATGT CCTCCAAAAT ATCTACAAAG TCTGCCTTTA CAAAGCTAGC CAAGTCTTGT	10500
GGCGCGACGA TAATGCTGTG TCCGACTTCG CCTGCAGAGA CAATCATTTG ATCCAAATCT	10560
AGAGCAATTT TATCGATAAA AATGGGATAA TTGTGTTTCT GACGAATTC GACAGGATTA	10620
TTGGCTCCAT GAATGTAACC AGTTGTTTTT TCTAAGTCCT TTTGTGGAAT CATGCTCACT	10680
TTTTTATTGC CAGAAATTTT AGCTAGTTTC TTTTCAGACA AGTCTGAGT GATAGGGACA	10740
ATTCCGATAA TCGGTCCGGT CTGTCTCTCC AAAAGCGCCA AGGTTTTGAA AATCTGATCT	10800
CGTTCATAAC CTTGAGGAAG CTCTCCTTCT AGGGCATTGA TTTGAATCCC CTGATGAGGG	10860
ATAGCTGCTT TAGATAGGAT TTGTTCCACC AATGTTTTTT TGATTTTAAC TTTTTTTGCC	10920
ATTATTTATA TTTATCCTCC AATTGACTCA TCCAAATACC AAGCCAGATT CCCAGCGCAA	10980
AGAAGAAGGC GATGATGACA TAACCGACAA GTGAAAGTCC TGTGTATTGG ATACTTTCAG	11040
CGTTTCCTGC ATTTGGAATT AAGATCAAAA GGGTACTTGA TAGGACGATA CCGATGATGA	11100
AATGATAGAC GAACTGTTTA CGGAGTTCTT CTAGTTCTCC GTCCGTCCAA GCGTAGGCCA	11160
CTTCTTCTTT CTGCTTTTA CCTTTGGACA TCTTGTAAG AGGTGGGAGG GCAATATAGA	11220
CATGACCTGC CTCGACTAGC GGACGCATGT AACGGTAGAA AAATGTCAAG AGCAAGGTCT	11280
GGATATGGGC ACCGTGCGTA TCCGCATCG	11309

## (2) INFORMATION FOR SEQ ID NO: 109:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 5548 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 109:

CCATAGTCTA ACAAGTCTTT GTAAAGGTTT ATCCCTGATT CATGTAAAGA TTGTGTAAAG	60
AATCAAAAAA AGCCACTTTT GAAAAATGGC TGCTCCTAAA AATAGCTTTA AAAATTATTA	120
GTCTGTGCG AAAGATTGGT TAGGAAGAAA AATCGTGAAG CAACTGCCTC TGCCAAGCTG	180
ACTCGTCACC GTGACTTGGC CACCTAATAA TTGACTGAGT TCTTTGACAA TGGCAAGGCC	240
AAGACCAGTG CCACCAGTTT GTCTGCTTCG ACCTTTATTA ACTCGGTAAA AACGTTCAAA	300
AATACGATCC TGCTCTAATT GACTAATACC AATCCCTGTA TCTGATACAG AAATCTTAAT	360
GCCTTCGTTT ACCTTTTGGG TCTTGACCTC AATTTTCCC CCTTGTTTCAG TGTAACGGAT	420



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GGCATTGGAT AAAAGATTGA GTAAGATTTG GGAAAGTAAT TGACTATCTG ATACGAGGGT	480
GACATCATCT GGCACCTGCA CCTTTAGCTG TAAATCCTTC TTCTTGAGCT GAGGTTGCAA	540
GCTTTGAGTC AAATCCTGTA CAAATTCTGC CAAAGAAAGG GTCGTCCATT GTATAGGCAT	600
TTGTTGAGCC TTAGATAAGG TAAGAAGATG CTCAACAATA TGCTCAAGAC GCAAACCTTC	660
TTTGTAATA ATGTCTAGAA AGTCATCCTT GAGCGCTTCT TCTTCAGCTG ACATCCCCTT	720
AATGGTTTCA GCAAAGCCCT TAATCGAAGT AACTGGTGTC CTCAATTCAT GGGAGGCATT	780
TGAGACAAAG GCTAAATTTA ACTTTTCATA AGTTCTAATC GTTGTTAAAT CATATAGCAA	840
GACGAGCACA GCTTCCACAG ATTGGGTGGG GCTAAAAACG GGAAGTCTG TCACTTCTAA	900
AATCAAGTCA CCCTCATGAA ACCCACTTAC TTCTTGTTTT AACCTTGTTT TTTGATCAAA	960
GGCTTGGTGA ACTAAATTCC GAATATCCAT CCGTTTGAGG TCATCAAGTG AACTTATGTC	1020
GCCGTCCACA TCGGGAAAAT AATGAGGCAG AGAGCGACTG GATAATAACA TCTGACCTTG	1080
AGCGGAAACT AAAAACGTCC CCATGGTTAG GTGCGACAGA AGAACCTCCA TTGTTTCGGC	1140
TAGATCCTTG TATTGCTGAT CCTGTTGGGA GACTTTGGTT TTTAGGCCAG ACACATACTG	1200
AGCCAAAGAC TTTAAGTCTT CTTGCCCTTT TTCTAAAAAG TATTCACTAC TGGTCAAGAG	1260
AGGTTGGTGC AAGGTCTCAA AAGCAACTTC CCATTTCCAA AGGCAAAAGA GCCAGTAGCC	1320
ACCTAGTCCC AAAGAAAGGG CTAGAAGAAA GAGACCGATG CCTTTACTGA TCCAAGTTAA	1380
TGCCATCCCT GCAATCAGAA TGAGGCTAAC ACTTAGATTG ACTAGCCAAA ATTGAAGGTA	1440
GCGTTTCATC TATAACTCCT TGAACCTATA ACCATAACCC CGAATGGTTC GAATAAATTG	1500
AGGGGCTTTA GGATTGTCTT CAATTTTTC CTTCAACTTA CCAATATGAA CGTCCACCAA	1560
ACGTGTTTCC TGCCCCAAGT CATACCCCCA GATACGTTCC AAAAGACGCT CTCTAGTCAG	1620
TGTCATGTTG GGATGTTTCA TAAGATAGAG CAAGAGTTCA AATTCTTTTG GGGTCAAAC	1680
CAGTAACTTA TTCGCCTTGT AGACTTCATG ACGCTCAGGG TATACTTTCA AGGTCCCAAA	1740
TAGCCAAGAA TCGTCAGCGA TATTATCTGA ATCATCTCCT TCTTGTTCTC CTTTAGTTTCG	1800
CCTGAGGACA GCCTTGACAC GCGCCAGCAA TTCTCTAGGG CTAAAAGGCT TGGTCAGGTA	1860
GTCATCAGCC CCTAATTCCA AGGCCAAAAC CTTATCAAAT TCATCACTTT TCGCAGAAAC	1920
CATCATAATT GGAGTTTGA CGCCTTTGGC TCTCAGCCGC TTACAACTT CCATGCCATC	1980
TAATTGTGGT AACATGATAT CAAGCAAGAT AAAATCAAAG GCTTCTGTTT CTGCCAAAGC	2040
TAAGGCCTTC CGTCCATTG TCACCAATTG AGTAGAAAAG CCTTCCTTAC TTAAATGGTA	2100
GTCAAGCAAT TTCAGAATGT GTTCTTCATC ATCCACTAAT AAGACTTGTT TTGTCATCTA	2160

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TTATCTCCTA TTGGTAACAT TATAACACAA TTATCAGAAA TCCTAACATT GCTAAATCAG	2220
ATTAAATTTG CCTATCAAGA CTAGTATCTG GTCAAACGCT CAATCATCTC CTTGTGCTCT	2280
GGATAGGTCG CCAGTAGATC TACCCTTTCA AATAATTCAA AATCCTCAAA TTCAAAACCA	2340
GGAGCAACAA GACAAGAAAC CAGAGCATCA TCCTTATCAA CTGTTGATCC CCAAATAGTG	2400
CCCTTAGGAA CACAGTAGTG AAGTTGTTGC CCTTTGGATA TGTCCAGGCC TAAAGTGACT	2460
GCTTCGTAGT GACCATCTGC TGTAATCATG TGAACAGTAA GTGGGGATCC TGCATGAAAA	2520
TACCAGATTT CATCTGCTGT CAATCGGTGA AAATGTGAAG GATTTCGTTT TTCTAATAAG	2580
AAATAAATAC TGGTATAAAG CGCCCTTCCC TTACCAGCAA GGTTTATAGT GTCTGAAGCT	2640
TTTTTTGTTT GTCTAAAATA GCCACCTTCA ATATGGGGAG CTAACCTAG AGTTCCTTATC	2700
AAGTCTTCTT TATCCGTCGG AGCCAATGGG TTGAAGTAAC TCTTGTTCAA AGTGGTTTTA	2760
CGATTTCAG AACTCCTCTC AGTTCGAGG ACACGGTAAT GATTGATGCG ACGGAAGTAC	2820
AAATCAATCG CCCTAAAAAA AGAATTAGCG AATGATTCTG GTAAAAAAA TGCCACGCTA	2880
TGAAGGCTCA AGCGATTGTC ACAAGTCAAG GGAGAATTGT TTCTTTGGAT ATCGCTGTGA	2940
ACTATTGTCA TGATATGAAG TTGTTCAAAA TGAGTCGCAG AAATATCGGA CAAGCTGGTA	3000
AAATCTTGCC TGACAGTGGT TATCAAGGGC TCATGAAGAT ATATCCTCAA GCACAAACTC	3060
CACGTAAATC CAGCAAACTC AAGCCACTAA CAGTTGAAGA TAAAGCCTAT AACCATGCGC	3120
TATCCAAGGA GAGAAGCAAG GTTGAGAACA TCTTTGCCAA AGTAAAAACG TTAAAAATGA	3180
TTTCAACAAC CTATCGAAAT CATCGTAAAC ACTTCGGATT ACCAATGAAT TTGATTGCTG	3240
GCATTATCAA TCATGAACTA GGATTCTAGT TTTGCAAGAA GTCTATTATT TGGTTAGGTG	3300
AATTAGTGAA GCGTTTAGGC AAGTGTCTCT GGTACGACG TCATGGACTC TAAATCGATT	3360
ATATTTAGGG GTCATGACTA GTGAAGCAGT TAGCTAGTTC GCATATAAGC GGCTAGCGTC	3420
TAACAATTAG GAACTTTAGT TCCAATAACT TTAAGATTAC GACGTTTTAG GACATAAATC	3480
GATCATATTT ATGTCCTAAA ACTAGTGAAG CGCCTAGCCA AAGTCCGAAT AGGATTTCGC	3540
GTTAGTTACT TAGATTGCTT TGCAATCAAG TAACTTTGGC GATTTACATC TTCTCTGGCG	3600
CTTCTACTCC AAGCAAGCGA AGGGCTTCTT TGAGAACGAC TGCGGTTGCG TAGCTGAGGG	3660
CTAGACGGCT GTCGCGTTCT GGGCTTTCAT CCAAGATACG TGTATGTGCA TAGTATTTGT	3720
TAAAGGATTG AGCCAGGCTA ATTGCAAATT TAGCAATGAT AGAAGGTTCA AAGTTATCTG	3780
CCGCACGGTT GATAATACGT GGGGAAGTCTT GAATGAGTTT AATGATTTCC CAGCTTTCAG	3840
TATCATTCOA GCTATAGTTG CCAGCTGTTT CTGGTTTGAA ATCGGCTTTG CGTAAGATAG	3900
ATTGGATACG AGCGTAGGCA TATTGAACGT AAGGTCCAGT TTCACCCTCG AAGGATACCA	3960

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TAGCCTCTAG GTCGAAGTCG TATCCATTTG TACGGTCGGT TTTGAGGTCA TAGAATTTAA	4020
TGGCTCCAAT CCCAACAGCA TGTGCTACTT GGTCTTTGTT TTCTAGTTCA GGATTTTTAG	4080
CCTCGATTTG GACCTTGCCA CGGCTAACAG CCTCTGCAAC AGTAGGCTCT AGCAAGATGA	4140
CATTCCCTTT ACGAGTAGAG AGTTTCTTCC CTTCTTTTGT AACCAAACCA AAAGGAACGT	4200
GAGTAATGTC GTCACTCCAG TCGTAGCCCA TCTCTTGCAA GACAGCTTTG AGCTGTTTAA	4260
AGTGGGCAGA TTGTTCTTGA CCAACGACAT AGATAGATTT AGCAAATTGG TATTCGTTTT	4320
TACGGTAGAG GGCTGCAGCC AAGTCACGTG TGATATAGAG AGTTGCACCA TCAGACTTCT	4380
TGATGAGGGC TGGATGTTCA ATTCCATATT TCTCAAGATT CACAACTTGG GCACCTTCTG	4440
ATTCAGAAG TAGTCCTTTT TCAGAAAGAA TGTCTACAAC TGCATCCATC TTATCATTGT	4500
AGAAGGCTTC TCCGTTATAG CTGTCAAATT CAACCTTCAA TTCATTGTAA AGGCGGTAA	4560
ATTCCACTAA ACTTTCATCG CGGAACCATT GCCAAAGAGC GAGAGCTTCC TCATCTCCAT	4620
TTTCAAGTTT ACGGAACCAT TCGCGCGCTT CTTTCATCCAA GCTAGGGTCA TTTTCAGCTT	4680
CAGCGTTGAT GCGGACATAG AGTTTAAGGA GTTCATCGAT TGGATGAGCT TTTACAGCTT	4740
CTTCGTCGCC CCATTTTTTG TAGGCAACAA TCAACATCCC AAATTGTTTA CCCCAGTCTC	4800
CCAAATGGTT GACCTTGACC GTTTGATAAC CGATTTTTTG GAAAATATGT GACAAGCTAT	4860
CTCCGATAAC AGTTGAACGC AGGTGGCCAA TAGAAAATGG TTTAGCGATA TTCGGACTAG	4920
ACATGTCGAT AACAACATTT TCTTGTTTAC CAATATTTTG GTCAGCATAG TGTCTTTTTT	4980
CAGTGGTAAC AGCTTGCAAT ACTTGAGCAG AAATGGCAGA TTTATCAAGG AAAAAGTTAA	5040
CGTAAGGTCC TGTGCGACA ACTTTTCAA AGGCTTGGCT GTTCATTTTT TCAGCCAGTT	5100
CAGCCGCAAT CATTTGTGGT GCTTTACGTT CGACTTTTGC AAGAGAAAAA GCAGGGAAAG	5160
CAATGTCTCC CATTTCTGAG TTTTAGGGG TTTCCAGTAA CTTTAAAATA GCCTCTTGGT	5220
CCAGGCTATC AATGATGCTA GATAATTCGC TAGCAATCAA TTCTTTTGTA TTCATTAAGA	5280
GCTCCTTTTT GGACTTTTCT ACTATTTTAT CACAATTTTA AAGAAAGAAG AAAAAATTTT	5340
TGAAATCTCC TGTTTTTTTG GTATAATATG GTTATAAATA TAGTTATAAA TATGCACGCA	5400
AGAGGATTTT ATGAGAAAAA GAGATCGTCA TCAGTTAATA AAAAAATGA TTACTGAGGA	5460
GAAATTAAGT ACACAAAAAG AAATTCAAGA TCGGTTGGAG GCGCACAATG TTTGTGTGAC	5520
GCAGACAACC TTGTCTCGTG ATTTGCGG	5548

(2) INFORMATION FOR SEQ ID NO: 110:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3132 base pairs

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(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 110:

TACCCGGTAG TCTTAGCAGA CACATCTAGC TCTGAAGATG CTTTAAACAT CTCTGATAAA	60
GAAAAAGTAG CAGAAAATAA AGAGAAACAT GAAAATATCC ATAGTGCTAT GGAAACTTCA	120
CAGGATTTTA AAGAGAAGAA AACAGCAGTC ATTAAGGAAA AAGAAGTTGT TAGTAAAAAT	180
CCTGTGATAG ACAATAACAC TAGCAATGAA GAAGCAAAAA TCAAAGAAGA AAATTTCCAAT	240
AAATCCCAAG GAGATTATAC GGACTCATTG GTGAATAAAA ACACAGAAAA TCCCAAAAAA	300
GAAGATAAAG TTGTCTATAT TGCTGAATTT AAAGATAAAG AATCTGGAGA AAAAGCAATC	360
AAGGAACTAT CCAGTCTTAA GAATACAAAA GTTTTATATA CTTATGATAG AATTTTAAAC	420
GGTAGTGCCA TAGAAACAAC TCCAGATAAC TTGGACAAAA TTAAACAAAT AGAAGGTATT	480
TCATCGGTTG AAAGGGCACA AAAAGTCCAA CCCATGATGA ATCATGCCAG AAAGGAAATT	540
GGAGTTGAGG AAGCTATTGA TTACCTAAAG TCTATCAATG CTCCGTTTGG GAAAAATTTT	600
GATGGTAGAG GTATGGTCAT TTCAAATATC GATACTGGAA CAGATTATAG ACATAAGGCT	660
ATGAGAATCG ATGATGATGC CAAAGCCTCA ATGAGATTTA AAAAAGAAGA CTTAAAGGCC	720
ACTGATAAAA ATTATTGGTT GAGTGATAAA ATCCCTCATG CGTTCAATTA TTATAATGGT	780
GGCAAAATCA CTGTAGAAAA ATATGATGAT GGAAGGGATT ATTTTGACCC ACATGGGATG	840
CATATTGCAG GGATTCTTGC TGGAAATGAT ACTGAACAAG ACATCAAAAA CTTTAACGGC	900
ATAGATGGAA TTGCACCTAA TGCACAAAT TTCTCTTACA AAATGTATTC TGACGCAGGA	960
TCTGGGTTTG CGGGTGATGA AACAATGTTT CATGCTATTG AAGATTCTAT CAAACACAAC	1020
GTGATGTTG TTTCGGTATC ATCTGGTTTT ACAGGAACAG GTCTTGATAG TGAGAAATAT	1080
TGGCAAGCTA TTCGGGCATT AAGAAAAGCA GGCATTCCAA TGGTTGTCCG TACGGGTAAC	1140
TATGCGACTT CTGCTTCAAG TTCTTCATGG GATTTAGTAG CAAATAATCA TCTGAAAATG	1200
ACCGACACTG GAAATGTAAC ACGAACTGCA GCACATGAAG ATGCGATAGC GGTCGCTTCT	1260
GCTAAAAATC AAACAGTTGA GTTTGATAAA GTTAACATAG GTGGAGAAAG TTTTAAATAC	1320
AGAAATATAG GGGCCTTTTT CGATAAGAGT AAAATCACAA CAAATGAAGA TGAACAAAA	1380
GCTCCTAGTA AATTAAAATT TGTATATATA GGCAAGGGGC AAGACCAAGA TTTGATAGGT	1440
TTGATCTTA GGGGCAAAAT TGCAGTAATG GATAGAATTT ATACAAAGGA TTTAAAAAAT	1500
GCTTTTAAAA AAGCTATGGA TAAGGGTGCA CGCGCCATTA TGTTGTAAA TACTGTAAAT	1560

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TACTACAATA GAGATAATTG GACAGAGCTT CCAGCTATGG GATATGAAGC GGATGAAGGT	1620
ACTAAAAGTC AAGTGTTTTT AATTTTCAGGA GATGATGCTG TAAAGCTATG GAACATGATT	1680
AATCCTGATA AAAAACTGA AGTCAAAAGA AATAATAAAG AAGATTTTAA AGATAAATTG	1740
GAGCAATACT ATCCAATTGA TATGGAAAGT TTTAATTCCA ACAAACCGAA TGTAGGTGAC	1800
GAAAAAGAGA TTGACTTTAA GTTTCACCT GACACAGACA AAGAACTCTA TAAAGAAGAT	1860
ATCATCGTTC CAGCAGGATC TACATCTTGG GGGCCAAGAA TAGATTTACT TTTAAAACCC	1920
GATGTTTCAG CACCTGGTAA AAATATTAAA TCCACGCTTA ATGTTATTAA TGGCAAATCA	1980
ACTTATGGCT ATATGTCAGG AACTAGTATG GCGACTCCA TCGTGGCAGC TTCTACTGTT	2040
TTGATTAGAC CGAAATTAAA GGAATGCTT GAAAGACCTG TATTGAAAAA TCTTAAGGGA	2100
GATGACAAAA TAGATCTTAC AAGTCTTACA AAAATTGCCC TACAAAATAC TCGCGGACCT	2160
ATGATGGATG CAACTTCTTG GAAAGAAAA AGTCAATACT TTGCATCACC TAGACAACAG	2220
GGAGCAGGCC TAATTAATGT GGCCAATGCT TTGAGAAATG AAGTTGTAGC AACTTTCAAA	2280
AACACTGATT CTAAAGGTTT GGTAAACTCA TATGGTTCCA TTTCTCTTAA AGAAATAAAA	2340
GGTGATAAAA AATACTTTAC AATCAAGCTT CACAATACAT CAAACAGACC TTTGACTTTT	2400
AAAGTTTCAG CATCAGCGAT AACTACAGAT TCTCTAACTG ACAGATTAAA ACTTGATGAA	2460
ACATATAAAG ATGAAAAATC TCCAGATGGT AAGCAAATTG TTCCAGAAAT TCACCCAGAA	2520
AAAGTCAAAG GAGCAAATAT CACATTTGAG CATGATACTT TCACTATAGG CGCAAATTCT	2580
AGCTTTGATT TGAATGCGGT TATAAATGTT GGAGAGGCCA AAAACAAAAA TAAATTTGTA	2640
GAATCATTTA TTCATTTTGA GTCAGTGGAA GCGATGGAAG CTCTAACTC CAGCGGGAAG	2700
AAAATAAACT TCCAACCTTC TTTGTCGATG CCTCTAATGG GATTTGCTGG GAATTGGAAC	2760
CACGAACCAA TCCTTGATAA ATGGGCTTGG GAAGAAGGT CAAGATCAAA AACACTGGGA	2820
GGTTATGATG ATGATGGTAA ACCGAAAATT CCAGGAACCT TAAATAAGGG AATTGGTGGA	2880
GAACATGGTA TAGATAAATT TAATCCAGCA GGAGTTATAC AAAATAGAAA AGATAAAAAAT	2940
ACAACATCCC TGGATCAAAA TCCAGAATTA TTTGCTTTCA ATAACGAAGG GATCAACGCT	3000
CCATCATCAA GTGGTTCTAA GATTGCTAAC ATTTATCCTT TAGATTCAAA TGGAAATCCT	3060
CAAGATGCTC AACTTGAAAG AGGATTAACA CCTTCTCCAC TTGTATTAAG AAGTGCAGAA	3120
GAAGGATTGA TT	3132

(2) INFORMATION FOR SEQ ID NO: 111:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 14672 base pairs

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(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 111:

CGAGATTCTTCT TAAATGAAC TACGTGAAAT CTACCCATCA TCCAGATCTG GATATTCTCT	60
CCTATCTATA AGTAAAGTTT TAGGAGATTT TAATATAAGT TCTCATGCTT TTAAAGCTTC	120
GGTAAGAGAT TAAAACCGC TCAGTTTCCC ACTCATTGTC TTCTGGGAGA GTTCTCATTT	180
TATTATTCTT GAAAAAATTA GTAAAAACAA GTTTTATATT TTAGATCCTG CAAAAGGCAG	240
GCAGAGAATG TCAATAAGTG AATTTGAAAG GCATTATTCA AATATCATTT TAACATTTAA	300
AAAGTTAGAT AGCTTTATGT CTCGTAAAGA TAATAAGAAG TCGCCTGTTT TAAAGTATTT	360
TTTAAAGTAT AGGAATAAGC TAGGGATTTT ATTTTGTGTA ACAGCATTAT TGATGTAAAT	420
ACAATCATTG GTACCTATAG CTAATAGATA CATAATTGAC ACGAATTTCA AGGACGATTC	480
GTATTCGTCT AGAATGTTAT TTAATATATT ATTTATATTT ACTGTTTCAT TCTCACTAAT	540
GTATTTATTA AGACAGATAT ATGTTGCATC CTTAAAATAT ATAATGGATA AAGAGATTAG	600
CTATGATTTT ATGAAACATT TGATATATTT ACCTTACAGT TTTTATGAAA AACGTACTTT	660
AGGGGATATA CTTTTAGAG CTAACCTCTAT TGTTTATATA AGAGAAATAC TATCAAATAA	720
TTTTATAGCA GCTATACTTG ATTTGTAAAT GATTGTGGTT TATGCTGTGG TTTTATTTAG	780
CTTTTCTAAG TACATGGTAA TCTTTTAAAT ATCACTAAGT CTAGCTCTAT CTATTGTAAT	840
GTATCCAATC ATAAAAATCT CAAAAAATTT AATTGATAAA AATATAAAAG AAAAGGTAA	900
TGTTCAAAAT ATTACTTCCG AAGTAATTTT TAAAAATAGT GATATTAAGC TAACTGGAGA	960
AGAGGAATTT TGGATTAACA AATGGGATAA TTTAATACA AAACAGCTCA TCATAGGTCTG	1020
AAAACCTGAT ATACATTTAT CAATTGTTAG TAGTATAACG AATGTTTTAC AAATTATTCT	1080
CCCTGTTTTG ACCCTTATTG TAGGTGTAAA TATAAAAACA TTCGAACAAT TCACGTTAAG	1140
ACAAATGTA GCAATAAGTA CAGTCTCACC ATACTTTATT TCTCCTATAA TTTCTTTAAG	1200
TGATAACTAT ATACAATTAA TGTATTAAA GGGATATTTT TTAAGAATAG AGGATGTGTT	1260
TAATACTAAA TCCGAATTAA TTCCAGAAAG AGTCAGTCAA GATATAAAAT TTGATAAAAA	1320
AATAGAATTA AAAGATATTT GGTATAAATA TGGATTATTT GATGATTATG TTTTGAAAGG	1380
AATAAATGTT ACTATTAAAA AAGGAGAAAC TGTTGCTATT GTTGGAGAAT CAGGTTGAGG	1440
TAAGAGTACA TTAGCTAAAA TTTTATTAGG TTTATTAGAA CCTAATATTG GTTCAATAGA	1500
AGTTGATGGA GTAGAAAAAG AAGAAATTGG TCAACATTG TATAGAAAAG TTTTGGAGC	1560

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AGTGTTACAA AATTCAACCC TAAGTTATGG TACCTTAAGA GAGAATTGA CATTTGGACA	1620
CTTTGTTTCA GATGAAGAAT TAATGACAAA TCTAAATTCA ATTGGTCTTA GCAATGTAGT	1680
TAAATCTTTA CCTCTTGGAT TAGAGACAAT CATCGCTGAA GAAGGTAATA ACTTTTCTGG	1740
AGGGCAGCAG CAAATGATAC TTTTAGCTCG TTGTCTTTTG TCGAAACCTT CGGTAGTTGT	1800
TTTGGACGAA GCAACAAGTA GTTTAGATAA TTTATCTCAA CAAATTACAA CTTCTTACTT	1860
AAGTGAAATC GGTACCACTA AGATTTTAAT TGCCCATCGA CTAGATACTA TCAAGTCTGC	1920
AGATAAGATC TTAGTAATGC ATAATGGTGA AATTGTAGAG ATTGGGACCC ATAGAGAACT	1980
TCTTGAAC TA GGAGGCATTT ATAAGCAATT GTATTCAAAT AATTAGTTTT TGATTAAAAG	2040
GGTAAATTTA TGAAGATTAT GAAAAAAAAA TATTGGACTT TAGCGATATT ATTCTTTTGT	2100
TTGTTCAATA ATTCTGTTAC TGCTCAAGAA ATACCTAAAA ATCTTGATGG CAATATAACT	2160
CACACTCAGA CTAGCGAAAG TTTTCTGAA TCTGATGAAA AACAGGTTGA CTATTCTAAT	2220
AAAAATCAAG AAGAAGTAGA CCAAAATAAA TTTCGTATTC AAATCGATAA GACAGAATTA	2280
TTTGTAACAA CAGATAAACA TTTAGAAAAA AACTGTTGTA AATTGGAACT TGAACCACAA	2340
ATAAATAACG ATATTGTTAA CTCTGAAAGT AATAATTTAC TAGGCGAAGA TAATTTAGAT	2400
AATAAAATTA AGGAAAATGT TTCTCATCTA GATAATAGAG GAGGAAATAT AGAGCATGAC	2460
AAAGATAACT TAGAATCGTC GATTGTAAGA AAATATGAAT GGGATATAGA TAAAGTTACT	2520
GGTGGAGGCG AAAGTTATAA ATTATATTCT AAAAGTAATT CTAAAGTTTC AATTGCTATT	2580
TTAGATTTCAG GAGTCGATTT ACAAATACT GGATTACTGA AAAATCTTTC AAATCACTCA	2640
AAAACTATG TCCCCAATAA AGGATATTTA GGAAGAGAGG AGGGAGAGGA AGGAATAATA	2700
TCAGATATTC AAGATAGATT AGGTCATGGT ACGGCTGTTG TAGCTCAAAT TGTAGGGGAT	2760
GACAAATTA ATGGAGTAAA TCCTCACGTT AATATTAACG TCTATAGAAT ATTTGGTAAG	2820
TCGTCAGCTA GTCCAGATTG GATTGTAAAA GCAATTTTTG ATGCTGTAGA TGATGGCAAT	2880
GATATTATCA ATCTTAGTAC TGGACAATAT TTAATGATTG ATGGAGAATA TGAGGACGGA	2940
ACAAATGATT TTGAAACATT TTTGAAGTAT AAAAAGGCTA TTGATTACGC GAATCAAAAA	3000
GGAGTAATTA TAGTAGCTGC ATTAGGGAAT GACTCCCTAA ATGTATCAAA TCAGTCAGAT	3060
TTATTGAAAC TTATTAGTTC ACGCAAAAAA GTAAGAAAAC CAGGATTAGT AGTTGATGTT	3120
CCAAGTTATT TCTCATCTAC AATTTCCGTC GGAGGCATAG ATCGCTTAGG TAATTTATCA	3180
GATTTTAGCA ATAAAGGGGA TTCTGATGCA ATATATGCCG CTGCAGGCTC AACATTATCT	3240
CTTTCAGAAT TAGGACTTAA TAACTTTATT AATGCAGAAA AATATAAGA AGATTGGATT	3300

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TTTTCGGCAA CACTAGGAGG ATATACGTAT CTTTATGGAA ACTCATTGTC TGCTCCTAAA	3360
GTTTCTGGTG CGATTGCAAT GATTATTGAT AAATACAAAT TAAAAGATCA GCCCTATAAT	3420
TATATGTTTG TAAAAAATT CTGGAAGAAA CATTACCAGT AAAAAATGGT ATAAAAAGTG	3480
TAAATATACC AAACGTATTG AGATATGATT TGAATATGTT ACAATTAGAA TATAAAAAATG	3540
AACAAAGTTG GGATAGTTTC ATAGATAATG TTAATTTAAT TGAGTTGGAA GAGAGAATTC	3600
AAACTACTAT TGGAATTAAA CAAATAAACA CACACAATAT TATTACTATT GCCCGAGAAG	3660
GGTACTCTCA AAATTATTTA CCTAACACTT CAGAAAATAC ATATAATTCA TTACAAGTCA	3720
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GAGTCAAAAG ATGAATCACC TTGATGTAGG GGAGTTTGTC TTATTGCTGC CTGAACACCT	3900
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CATTGTTATA ACACCCCAAT CAACTGGTCC ACAGTCCATT TTGTTTTGGA TAGACGCAGT	4140
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CATTGAAAAT TGGGTCTCAG AAATGCAAAC AGGTTACCAC AACTACATCA CATTATTGGA	4260
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TGCTTTCTTA GTCTTGTTAC TCTTTACTGG TCTATCTCTT TTACAGTTAC ATGTCCAAAT	4560
GCAGAAAGAA AACAAGATGT CCATGCTTGT TTTGAAGGGA GGTTAATATG ATTGAACTTA	4620
AACAGGTGAG TAAATCTTTT GGAGAACGAG AGTTATTTTC GAATCTTTCA ATGACATTTG	4680
AGGCTGGAAA AGTCTATGCC TTAATTGGTT CAAGTGGTAG CGGAAAAACA ACCTTGATGA	4740
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CCAATTATAA ATCAAGTGAT TTTTCCGTC ACGAATTGGG CTACCTCTTC CAGAACTTTG	4860
GCTTAATTGA AAACCAAAGT ATTGAAGAAA ACCTTAAGCT AGGTCTCATT GGTCAAAAGT	4920
TGAGTCGGTC GGAACAGCGG TTGAGGCAGA AGCAGGCTTT AGAACAGGTC GGCCTGGTTT	4980
ATCTTGACCT AGATAAGCGC ATCTTTGAGT TATCGGGCGG AGAATCGCAA CGGGTTGCCT	5040
TGGCAAAAAT TATCTTAAAG AATCCACCCT TTATTCTGGC AGATGAGCCA ACAGCTTCAA	5100



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GGCTAATCAT TATCGCAACA CATAATCCGG CAATTTGGGA GATGGCTGAT GAACTGTTCA	5220
CGATGGATCA TCTGAAATAA AAATCCTTGT TTTAATTGTC ACGATGAGTT ACTGAAATAT	5280
TATCATGAAT CAAGAATTGG AGTTAATTTA GAATTGTACT TAATTTAGAA TTGTACTTTA	5340
TTAATATTGA GGTAACTTTT TCTTGATAAA GGAAGAAATA ATGGAGAGGA AGTTAGAATG	5400
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AAAATCTTAA TAATTGAAAG TTTGGTAGAT GATATTTTGC AATTTTCTCT CAGAATCAAT	5520
AATAGTGTAG GAGAGATTTT CCTCCTACAA CCGTTTTAAA AGAAAACAT CTTTATTCCA	5580
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GAAACAAGAA CAGGATAAAA GAACCTTTTG TGCCATATTT TTCTCCTTTC GCTTTACAAT	5940
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ACCCGCATAG CGGGTGTTTT TTTTGTCTCG CACCTAACGG AGCGAGACAA ACTAATAGTC	6060
ACTTAATCAA AAAACGCACC ATATCAAAAA CTAAAAAGTT TGATATCATG CGTCATGTCT	6120
TAAACTAATT GACTATACTT TCTATTCAA TGAGCTTTTA ACCAATTGAT TGAGCCAATC	6180
CACTCTTAAA ACCAAAGAGC AATTTCTCGC TTAGCTGACT CTTCTGAATC TGAACCATGT	6240
ACAACATTTT GGATAATCTC ATTTTCTCCA GCAGCTTTTG CAAAATCACC TCGAATAGTG	6300
CCTGGTAAAG CTTCTTCTGG ACGAGTTGCA CCCATCATGG TCCGCCAAGT TTCGATTACT	6360
TTGGGACCAG AAATGACACC CACAAGAACT GGACCTGAAG TCATGAATTC ACGAATCGGT	6420
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CTTCTCTAC TGGAGGATTA AGGTATTCTT CTTCTGTTGAC AGCATGTGGT TCAAGGTTAC	6840

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GTCCAAGGAG	ATGGTCTTTC	TTACCACGGA	TAGCTGCCGC	AGTAAGGACA	CGAGTTGTTT	6960
CCTGGAAGGA	AGCCGCTGAC	AAGAACTGT	TTGTTTCAAG	TGAGGCTTTG	GTAATTCCCA	7020
TAAGGACTGG	GCGACCTGTC	GCTGGAATC	CACCTGCCAT	AAGGACATCT	TTGTTGGCAT	7080
CTGTAAAGTC	ATTGATATCC	ATGAGGGTAC	CCATGAGAAG	ATCTGTATCA	CCTGGATCCA	7140
TGACACGGAC	TTTACGGATC	ATTTGACGAA	CCATTACCTC	GATGTGTTTG	TCACCGATTT	7200
CTACCCCTTG	GCTACGGTAA	ACTTTTTGTA	CTTCACCGAG	AAGGTACGTT	TCAACTGACA	7260
AGACATCAGG	AACTGCAAGG	AGACGTTTTG	GTTGGATAGA	ACCTTCTGTC	AGAGCAGCAC	7320
CACGCGCTAC	TTGGCCCCCA	ACTTCGACAC	GCATACGAGC	TGTAAATGGA	ACGACATATT	7380
CACCTTCGCC	AGTTTCACCC	TTAACAAAGA	CTTTCTTGGT	ACGAGTTGAT	GCATCTTCTT	7440
CGATAGCAGT	AACTTGTCCT	TTAACCTCTG	TAATAACCGC	TTCCCTTTTA	GGATTGCGGG	7500
CTTCAAAGAT	TTCTTGGAACA	CGAGGAAGAC	CCTGAGTGAT	ATCGGTATTT	GAGGCAACCC	7560
CACCTGTGTG	GAAGGTACGC	ATTGTAAGCT	GTGTACCAGG	TTCCCCGATA	GATTGGGCAG	7620
CGATTGTACC	AACTGCTTCA	CCAACCTCAA	CCGCATCACC	AGTCGCCAAG	TTGATACCGT	7680
AACAGTGACG	GCAGACACCG	TGACGAGTGT	TACATGTAAA	TACAGAACGG	ATAGTCACTT	7740
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CAATAATCAC	TGCACCACTT	TCTGGATGTT	TAACAGTTTT	CTTAGTGTA	CGACCGTTGA	7860
GACGCTCTTC	GAGAGACTCG	ATCATCTCTT	TTCTTCTGTC	GATAGAACGG	ATCAAGAGAC	7920
CACGGTCAGT	TCCACAGTCG	TCCTCACGGA	TGATAACGTC	TTGGGCAACG	TCGACCAAAC	7980
GACGAGTCAA	GTAACCTGAG	TCGGCTGTCT	TAAGGGCCGT	ATCGGTCATA	CCTTTACGAG	8040
CACCGTGAGT	TGAGAAGAAC	ATTTCCAATA	CCGACAAACC	TTGCGGAAG	TTTGAAAGGA	8100
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TAGGATCTTG	GTTAGCAATC	AAGCGTTTCT	CAAGTTTTTC	ACGGGCAGCA	CGCCATTACG	8280
CTGTAACAGC	ATTGTAACGC	TCGTCGTCTG	TGATCATACC	ACGACGGAAT	TGTTTGGTGA	8340
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TATCGGCAAT	ACCCACTGTC	AATCCTGCAA	GAGTTGAGTG	GTGGTAACCG	AGGTTCTTCA	8460
TGCGGTCAAG	TAGGGCAGAA	GTTTCTGTCT	TACGGAAACG	TTTGAAGATT	TCAGCGATGA	8520
TATTTCCAAG	GTTTTTCTTC	TTGAATGGAG	GTTTGAGCTC	AAGATTGCTG	ATAGCTTCCT	8580
TGATATCTCC	ACCAAGTGGC	AAGAAGTATT	TAGCTGGAAC	ACCTTCTGTC	AAGTTGGCAT	8640

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TGTTTGGTTC TTGCAAGTAT GGTAGCCCTT CTGGCATGAT ATCGTTGAAG AGAATTTTAC	8700
CAACTGTTGT AAGCAAGACC TTATGTCTTT GCTCTTCTGT CCAAGGCTTG TTGAGGCTGT	8760
CTGTTGCGAT ACCAACACGT GAGTGGAGGT GAACATAACC ATTGCGGTAA GCCATAACCG	8820
CTTCGTCACG GTCTTTGAAG ACCATTCTCT CACCTTCGCG ACCAGCTTCT TCCATGGTCA	8880
AGTAGTAGTT ACCCAAAACC ATGTCCTGAG ATGGAGTAAC TACCGGTTTC CCATCTTTCG	8940
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AAAGTGGTAC GTGGATGGCC ATTTGGTCCC CGTCAAAGTC AGCATTGTAG GCTTCACAGA	9060
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TAACACGGCG GTAAAGGTCA TTCAAGTCAG ATGAGGCAAA ACGGCCACCA TCCAAC TGCA	9660
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CTTGCTTCAA AAGGTCTTGG ATGGCTTCCG CACCCATCTT GGCAACAAAT GAACCATAAC	9900
CATATTCACG CAAGCGCTCT CGGTATTCGC GCTCTGTCAT GATAGACTTG TGCTCAAGTG	9960
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GAGGGCTCAT ATCAAGGGTC AAGCCCATAC GGCTTGAAT CCCCTTGAAG TACCAGATGT	10080
GAGATACAGG AGCTTTCAAT TCGATATGTC CCATACGCTC ACGACGAACT TTCGTACGCG	10140
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CACAAGCACA TTCCAGTCT TTTGTAGGAC CAAAGATCAC TTCATCAAAG AGTCCTTCAC	10260
GTTCTGGTTT CAAGGTACGA TAATTGATTG TTTGAGGTTT TTTGACTTCT CCATAAGACC	10320
ATGAACGGAC TTTACTTGA GAAGCTAGGG TGATTTCAT ACTTTTAAAA CGATTTACAT	10380

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CAACCACTAT TTCTTCCCTT TCTATTCTAA GTGAAGTCTT TATTCTTGTT CAGCAGCTTC	10440
TTCTGTTGCT TCCGCTTTTG TTGCTTTCTC AGCTTCTTCA GCTTCAAAGG CTGCTTTAGC	10500
CTCTTGGGCT GCTTTTTCGC GGGCTTTTTC AAGGTCATCT ACGTGGATGA CATCTTCGTC	10560
CATTCCCTCA TCCAAGTCGC GAAGTTCCAC TTCTTGGTCA TCTTCGTCTA GGACACGCAT	10620
GTCAAGACCA AGAGATTGCA ATTCTTTGAC AAGAACTCGG AAGGATTCTG GAACACCTGG	10680
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GTCCGACTTG TAAGTCAAGA TTTCTTGAAG GACATTTGAC GCACCGTAGG CTTCAAGAGC	10800
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ACCTGAGTTT GAACGACGGA ATTTTGGAT GTGGTAAACA TCCAATGAAC CATCTTCACG	11940
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AACGTCCATG TAGTCAACAA TATTAGCTGG ATACTCTTGG TTGACCCCTT GGTGACGTCC	12240
CATGACAATC TTCTCAGCAA AGGTTCCATC TTCATTGAGA CGAGAGTTAG CCTGAGCTAC	12300
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TTCACGGTCA ACCTTACGGT ATGGTGTGTTG AACAAAACCA TATTTGTTCA AGTGTCCATA	12420
AGATGACAAG TTATTGATCA AACCAGTGT AGGTCCTTCA GGTGTCTCGA TTGGACACAT	12480
ACGACCATAG TGAGTGTAGT GCACGTCACG TACTTCATAT CCAGCACGGT CACGAGTCAA	12540
ACCACCAGGT CCTAAGGCTG ACAAACGGCG TTTGTGAGAC AACTCAGAAA GCGGGTTGTG	12600
TTGGTCCATG AACTGTGACA ACTGTGATGA ACCAAAGAAT TCTTTAACTG CAGCTGTTAC	12660
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ACGAGTCATA ATCGTACCAG CTTCTACCAA GATTTCCTCA GTTTCAGGGT CTACCAATGG	13140
CTCTGCAATG GTTTGGTTGA GCAAACGTGT TTTAACATTG AGTTTTTTAT TGATTTTGTA	13200
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AACCAATTCG CTGTCACCAA AGATATCAAA GATTTCATCA TCACCTGAGA AACCAAGAGC	13440
ACGAACCAAG GTTGTAATG GAATCTTACG AGTACGGTCG ATACGAGTGT AGGTGATATC	13500
TTTTGAGTCG CTTTCAAGTT CCAACCAAGC TCCACGGTTA GGGATAACAC TTGAACCATA	13560
GCCCACCTTA CCATTTTTGT CTAATTTGTC GTTAAAGTAA ACACCTGGTG AGCGGACCAA	13620
CTGAGAAACG ATAATACGTT CACCACCATT GATGATGAAA GTACCCATTT CTGTCATGAT	13680
TGGGAAATCA CCAAAGAAAA CTTCTGGGT CTTGATTTG CTTGTTTCTT TATTGATCAA	13740
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GAATGAGTCA GTTTGAATTT CAATCAAATT TGGTAAGTCA AGAACTTCTT TGATTCTTGA	13980
AAAACCTACGA CGGGTACGAT GTTTCCCGTA TTGAACGTCA TGTCTGCCA AGATGATTCT	14040
CCTTTGTAAA TAAGTTCCAA GCCTTGTCOA TCAGGCTTTT CTAATCGTCA TATGGTTGTA	14100
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CCATATTATA CCTATTAG CTAGATTTTT CAAGGGGTTT CAGTAGGTTT TTGGTAAATT	14340
TTTTCCCATATA GAAAACCTGG CATCACATTC GAATCACGCT ATGGTACAAA AAACCTGAAAA	14400
AACTATTGAC TGAAAATCAT TTTCAAGGTA TAATAATAAA CGTTAAGGCG GTATAGCCAA	14460
GTGGTAAGGC ACGGCTCTGC AAAAGCTTGA TCGTCGGTTC AAATCCGTCT ACCGCCTTCT	14520
ATAACTTGAT TTATCAGGTT TCAAATGAAC AGAAAGCCCA ATTTGAAGGG CTTTTTTTAT	14580
TTTCCCTCGA ATAAATACGT ATAACTTTAA AAACCTTTGG AGCGAGTTTG TGGCAGACTT	14640
CTTCCATGG CATAATTCCC TTTTGAAATC AG	14672

(2) INFORMATION FOR SEQ ID NO: 112:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 7902 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 112:

AGGAGACTAT TCAAGCCCAA ATTgAGTAGC CCAGCAAAGA CTGTATAGAC TGTGATACGT	60
TTTTCATAGC CATTGGTAAA GAGAATTTGG GAACCAAGAA TGGTATCTAA GGCCAGGATA	120
ATCGTACGAA AAGCGAAGAG AGAGGTCAAG ATGCCGCCCTC CGATATATTT TTCACTACCG	180
TAAAGTAGGA TGGCATTGG TCCTAAAACC ATGAGTCCAA AACTCAGTGG AATGATAAAG	240
AAGTTAAAGA TTCGACTACC TCTATTAACC AGAGAAACAT AGGCTTCTTT GTCTCCTTTC	300
CCCAGATAGT AACTGAGACG AGGCACACTC ACTCCAATTG CACCTGTTAC AACCCAGCT	360
ATAACGGTCA CAATTCGCTG AGCTATGGTA TAGTAACTAA CGTTGACATC AATCCCTGTT	420
TTAACGAGGA AGAGGCGATC TAAAAAAGTG AAGAGCATAT TGGCATTGGC AAAGACTAAC	480
ATGGCTGTCA GAGGGAGAAA GAGTGGTTTA AAATCACTTA GGTGAATTTT AACAAGTTTG	540
ATGTCTCTTT TAATCCAAAA ATAACAAATC AGGTAGTTAA TCAGCGTCGA TAAACTCATC	600
ACAAGTGTAT AGACAACAAT ATCGTGTTCA TTTTAAACAA ATAAGAAAAT AGAGACCAGC	660

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ATCAGGATAC GGATGAAGGC AGTTTTGTAA AAGAGAAAAC TGTAATTTTC CAGAGCTTCA	720
TTGACCCATT CGATTGAAAA AATCTGGGCA ATGAGTTGAA TCCCCATAAC AAGGTAGACC	780
TTTTTGACGA TTGGATTATC AGTAAAGAAG AGAGGATAGG CTAGGATATA GACAGCAGTG	840
GTCAAAATCG TACAAGCGAT GCACAAATAA AAAAGACTAG AAAAGGTTCT GTTAAGATCT	900
TTTTTGTTAT CCTTGACATT ACTGATAGCC CTAAACCGT AGTTATAGAC ACCATAAGTT	960
GCAAAGGGCA AGAAAAATGA CAAAATAGTG TCGACTGAGT TGAAGTAACC ATAGTCAGTT	1020
CGGTCCAAGA CACGCGCGAC ATAGGTTCCA GTTAGGATGG GAAAAATAAT ATTCAAGACA	1080
CGAATTCCCA TGTAAGATAG AGCATTTAAT TTTATACTTT TCATTCAATT TACCTCGTTT	1140
TTCATTATAT CATAAAGTTA GCTAATAAGA AATGAAGGGC AGTAAGTCAA GTAATCACTT	1200
TGAAGTTTCA AATCTTAAGT TTAAAGTTTT CTTAAGGAA AGTATATTAT TCTGAAGGAC	1260
TCTAAAATTT CGCAGCCATT TATTAGTAAT TGCTACAGAA TTCCTAGTCA TTACTAGAAA	1320
TGGACTAGTT TCTTTGAATA ATAGAACTGC ATAATTCTCC TATTCTAGAA GGGGAGGACC	1380
AGTATTTCTT TTATGATAGG ACTAGATTGT GGTATAATAG AGAGAATAAG TTTTTTTAGT	1440
AAGACAAAGG AGAAAATAGA TGATTTATGC AGGAATCTT GCCGGTGGAA CTGGCACACG	1500
CATGGGGATC AGTAACTTGC CAAACAATT TTTAGAGCTA GGTGATCGAC CTATTTTGAT	1560
TCATACAATT GAAAAATTTG TCTTGAGGCC AAGTATTGAA AAAATTGTAG TTGGTGTTC A	1620
TGGAGACTGG GTTCTCATG CAGAAGATCT TGTAAGATAA TATCTTCCTC TTTATAAGGA	1680
ACGTATCATC ATTACAAAGG GTGGTGCTGA CCGCAATACA AGTATTAAGA ACATCATTGA	1740
AGCCATTGAT GCTTATCGTC CGCTTACTCC AGAGGATATC GTTGTTACCC ACCATTCTGT	1800
TCGTCCATTT ATTACACTTC GCATGATTCA GGACAATATC CAACTTGCCC AAAATCATGA	1860
CGCAGTGGAC ACAGTGGTAG AAGCGGTTGA TACTATCGTT GAAAGTACCA ATGGTCAATT	1920
TATTACAGAT ATTCCAAATC GTGCTCACCT TTATCAAGGA CAAACACCTC AAACATTCCG	1980
TTGCAAGGAC TTCATGGACC TTTATGGATC TCTTCTGAT GAAGAGAAGG AAATCTTGAC	2040
AGATGCATGT AAAATCTTTG TGATCAAAGG AAAAGATGTG GCTTTGGCCA AAGGTGAATA	2100
CTCAAATCTG AAGATTACAA CCGTAACAGA TTTGAAGATT GCAAAAAGTA TGATTGAGAA	2160
AGACTAGTAA AATGATTAAT CAAATTTATC AACTAACTAA GCCTAAGTTT ATCAATGTCA	2220
AATATCAGGA AGAGGCTATT GACCAAGAGA ATCATATCCT TATCCGTCCC AACTACATGG	2280
CTGTCTGTCA TGCGGATCAG CGTTACTATC AGGGAAAACG TGATCCCAAG ATTTTGAATA	2340
AAAAGCTTCC AATGGCAATG ATTCACGAGT CATGTGGAAC CGTCATTTCT GACCCGACCG	2400

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GAACCTACGA GGTGGTCAA AAAGTTGTCA TGATTCCCAA TCAGTCTCCT ATGCAGAGTG	2460
ATGAAGAATT CTATGAAAAC TACATGACAG GGACCCATTT CTTGTCTAGT GGATTTGATG	2520
GCTTTATGAG AGAGTTTGTT TCTCTCCCTA AAGATCGTGT GGTGGCTTAT GATGCTATTG	2580
AAGATACGGT TGCAGCCATT ACAGAGTTTG TCAGTGTGGG CATGCACGCT ATGAATCGTC	2640
TATTGACTCT TGCTCATAGC AAGCGGGAGC GGATCGCCGT TATTGGAGAT GGAAGTTTAG	2700
CTTTTGTGGT TGCCAATATT ATCAACTATA CTTTGCCAGA AGCAGAGATT GTGGTTATTG	2760
GTCGTCATTG GGAAAAGTTG GAACTCTTCT CATTTGCCAA AGAATGCTAT ATTACGGATA	2820
ATATTCCTGA AGATTTGGCC TTTGACCATG CTTTGAATG TTGTGGTGGT GATGGTACTG	2880
GACCAGCTAT TAATGACTTG ATTCGCTACA TTCGTCCTCA GGAACGATT CTCATGATGG	2940
GAGTTAGCGA ATATAAAGTC AATCTCAATA CTCGCGATGC CTTAGAAAAG GGCTTGATTT	3000
TGGTTGGGTC ATCTCGTTCT GGTGCGATTG ATTTTAAAA TGCTATCCAA ATGATGGAAG	3060
TCAAGAAATT TGCCAATCGT CTTAAAAATA TCCTTTATCT AGAAGAACCT GTAAGAGAAA	3120
TTAAAGATAT TCATCGTGTC TTTGCAACCG ATTTAAACAC AGCCTTTAAA ACAGTGTTTA	3180
AGTGGGAAGT ATAAGTACTG GAGGTTAATT GTGGAGAAAA TCATTAAAGA AAAAATTTCT	3240
TCCTTACTTA GTCAAGAAGA GGAAGTCCTC AGTGTGAAC AACTGGGTGG AATGACCAAT	3300
CAAACTATT TGGCCAAAAC AACAAATAAG CAATACATTG TTAAATTTCT TGGTAAAGGG	3360
ACAGAAAAGC TTATCAATCG ACAAGATGAA AAGTACAATC TTGAACTACT AAAGGATTTA	3420
GGCTTAGATG TAAAAAATTA TCTTTTGAT ATTGAAGCTG GTATCAAAGT AAATGAGTAT	3480
ATCGAATCTG CGATTACGCT TGATTCAACG TCAATCAAGA CCAAGTTCGA CAAAATTACT	3540
CCAATATTAC AAATATTCA TACGTCTGCT AAGGAATTAA GAGGAGAATT TGCTCCTTTT	3600
GAAGAAATCA AAAAATACGA ATCCTTGATT GAAGAACAAA TTCCTTATGC CAACTATGAA	3660
TCTGTTAGAA ATGCAGTCTT CTCCTTAGAG AAAAGACTGG CTGACTTAGG TGTGACAGA	3720
AAATCTTGTC ATATCGATTT GGTGCCTGAA AACTTTATCG AATCACCTCA AGGACGACTT	3780
TATTTGATTG ACTGGGAATA TTCATCAATG AATGATCCAA TGTGGGATTT GGCTGCCCTC	3840
TTTTTAGAGT CTGAATTCAC TTCCCAAGAG GAAGAACTT TCTTATCTCA CTATGAGAGT	3900
GACCAAACAC CGGTTTCTCA TGAAAAGATT GCTATTTATA AAATTTTACA AGATACTATT	3960
TGGAGTCTAT GGAATGCTA TAAGGAAGAG CAAGGTGAAG ATTTTGGTCA CTATGGTGTG	4020
AATCGTTACC AAAGAGCTAT TAAAGGTTTG GCTTCTTATG GAGGTTTACA TGAAAAGTAA	4080
AAACGGAGTT CCTTTTGGCC TTCTCTCAGG TATTTTCTGG GGCTTGGGTC TAACGGTTAG	4140
TGCTTATATC TTTTCGATT TTACAGATT GTCACCTTT GTGGTGGCTG CAACTCATGA	4200



817

TTTTTTGAGC ATCTTTATCT TACTAGCTTT TCTCTTGGTA AAAGAAGGGA AAGTTCGCCT	4260
CTCAATTTTC TTAAATATTC GCAATGTCAG TGTATCATC GGACCCCTGC TAGCAGGCCC	4320
TATCGGTATG CAGGCCAATC TTTATGCAGT TAAGTATATC GGAAGTTCTT TAGCTTCATC	4380
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GATTTTCGAAA AATACTGTAT TTGGGATTGT CTTGATTATT GGAGGGATTA TTGCTCAGAC	4500
CTATAAGGTT GAACAGGTTA ATTCTTTCTA CATTGGGATT CTTTGTGCTT TGGTTTGTGC	4560
TATTGCATGG GGAAGTGAGA GTGTTCTTAG CTCCTTTGCC ATGGAAGTG AATTGAGTGA	4620
AATCGAAGCC CTCTTAATCC GTCAAGTAAC TTCGTTCTTG TCCTATCTTG TGATTGTGCT	4680
CTTCTCTCAT CAGTCATTTA CTGCAGTAGC CAATGGACAA TTGCTAGGTC TCATGATTGT	4740
TTTTGCAGCC TTTGATATGA TTTCTACTT GGCTTATTAT ATCGCTATCA ATCGCTTGCA	4800
ACCAGCCAAG GCTACAGGCT TGAACGTGAG CTATGTAGTA TGGACGGTCT TGTTCGAGT	4860
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GCGGGATTGG GAACTCGCTT GCGTCCTATG ACTGAAAATA CCCCTAAAGC CTTGGTTCAG	5040
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GACATCATCA TCATTGTTGG TTATCTTAAA GAACAATTCG ATTACTTGAA AGAGAAATAC	5160
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AGCATTATG AGATCGATAG TGTCCAAGAC TATCGTAAAT TAGAAGAAAT TCTTAAAAAC	5640
GAAAAATAAA GATTCCAACA TCTGACAAAA TAGTCGGATG TTTTTCGATT TTTTACGAAC	5700
TTTTACGAAT AGATAGATGA GTAGAAAAAG AAATGGACTT ATTTATGAAA ATCACAAACT	5760
ATGAAATCTA TAAGTAAAAA AAATCAGGTT TGACCAATCA ACAGATTTTG AAAGTGCTAG	5820
AATACGGTGA AAATGTTGAT CAGGAGCTTT TGTTGGGTGA TATTGCAGAT ATCTCAGGTT	5880
GCCGTAATCC AGCCGTTTTT ATGGAACGTT ATTTTCAGAT AGACGATGCG CATTGTGCGA	5940

818

AAGAGTTTCA AAAATTTCCA TCTTTCTCTA TTTTAGATGA CTGTTATCCT TGGGATTGTA	6000
GTGAAATATA TGATGCGCCT GTACTTTTAT TTTACAAGGG AAATCTTGAC CTCCTGAAAT	6060
TCCCGAAGGT AGCGGTCGTG GGCAGTCGTG CTTGTAGCAA ACAGGGAGCT AAGTCAGTTG	6120
AAAAAGTCAT TCAAGGCTTG GAAAATGAAC TGGTTATTGT CAGTGGTCTG GCCAAGGGCA	6180
TTGACACAGC AGCTCATATG GCAGCTCTTC AGAATGGCGG AAAAACCATT GCAGTGATTG	6240
GAACAGGACT GGATGTGTTT TATCCTAAAG CCAATAAACG CTTGCAAGAC TACATCGGCA	6300
ATGACCATCT GGTTCCTAAGT GAATATGGAC CTGGTGAACA ACCTCTGAAA TTTTATTTTC	6360
CTGCCCCGTA TCGCATCATT GCTGGACTTT GTCGTGGTGT GATTGTAGCA GAGGCTAAGA	6420
TGCGTTTCAAG TAGTCTCATT ACGTGTGAGC GAGCAATGGA AGAAGGACGC GATGTCTTTG	6480
CTATTCCTGG TAGCATTTTA GATGGACTAT CAGACGGTTG CCATCATTTG ATTCAAGAAG	6540
GAGCAAAATT GGTCAACAGT GGGCAAGATG TTCTTGCGGA ATTTGAATTT TAAAAATGAC	6600
CTAAGCTAGA ATTCTAAGAA AAAATCAATT TTAAGAGAAA ATGAACCCAA CATTTCCATA	6660
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AGTAGAGTAG AGGATTTTTT TCATATAATA CTCTTCGAAA ATCTCTTCAA ACTACGTCAG	6780
CTTCCATCTG CAACCTCAAA ACAGTATTTT GAGCgaCTtC GTCAGTCTTA TCTACAACCT	6840
CAAAGCAGTG CTTTGAGCAA CCTGTGGCTA GCTTCCTAGT TTGCGCTTTG ATTTTCATTG	6900
AGTATAAGGG AAAGTATAGT GAATTGAAAT AAGATGTGAA CAACTCTATC AGGAAAGTCA	6960
AATTAATTTA TAGAAATATT TTAGCAGCCA AGGTGTACTG TTATAGATTC AATTACACTA	7020
TAATTTAGTG TAATTGAGAA AGGAGAAATG ATTGTGATTG ATGTTGGCTA GGTATGTTC	7080
AATGATTCCT ACCGTCTCAA ATCTTGTCAG TAAGGAAAAA TAAATCTTTC AAAAGTAGAG	7140
ATTACAAGGC TTGTTTAAGA AAGAATTCAA AGACCTTGAC AAATAAAAAAT AAAATGGTTA	7200
TTATAAAAAA TGGTCTGAAA TAGATGATGA TACTTTTCGA AAATCTCTTC AAATACGTCA	7260
GCTCAGCTTT GCCTTGCTGT GTTTGTAGCA AGCTACGGTT AGCTTCCGAG TTTGATTTTC	7320
ATTTACTAGA AATGAAACTG ATGAGAGATA TCAGTAGACA TTTGAGTCAG GATATTATGG	7380
AAAATGATAA AAAGAGCTCG TGAGATTGGC ATATCAGACT ACTAAAGTAT TGAGTTTGTT	7440
AGGATTTTAG CCACTAGTTA GCTGGGAAAG GAAGATATTT GTGACAAATA ATAAACTGTA	7500
TTGTTGATA GAATTTAGAA ATAAATATA TGAAGAATTA GAACTTTCCA GAAGTGATTT	7560
AGCGATTTTA CTATGTGCCA TGCTTATCGC CTCTATCGGA TTAAATATGG ATTCGACTCC	7620
CGTGATTATT GGAGCCATGT TAATCTCTCC TTTGATGACA CCTATTCTGG GAGTGGGGCT	7680
CTCTCTAGCT ATATTTGATT TTAAATTGTT AAGAAAATCT TTAAATATAT TAGCTATTCA	7740

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AATTCTTGCC AGTCTAATAG CTTCAACACT TTATTTTAT CTTTCTCCCA TTTCGTATGC	7800
TAGTTCGGAG ATTGTTGCTA GAACCTCTCC GACTATTTGG GATGTTCTCA TTGCTTTTGT	7860
AGGAGGGATA GCAGGTATCA TTGGTGCTAG GAAAAAAGAG AC	7902

(2) INFORMATION FOR SEQ ID NO: 113:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 18627 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 113:

GAAGTTGAAA TGGCCAGCTG ATGAGCAATA TCGGTCATAG AAATCTTCTC AATCAACTTT	60
TGCGCAATTT TTTGGTTGAT AATACGAGGA ATTTGGTGAT TTTTCTTGAC GATAGAAGTT	120
TCAGCGACCA TCATTTTGA ACAGTGATAG CACTTGAAAC GACGCTTCT AAGTAGAATT	180
CTAGTAGGCA TACCAGTTGT CTCAAGGTAA GGAATCTTAG ACGGTTTTTG AAAGTCATAT	240
TTCTTCAATT GGTTCGCCA CTCAGGGCAA GATGGGGCGT CGTAGTCCAG TTTGGCGATG	300
ATTCCTTGT GTGTATCTT ATTGATGATG TCTAAATCT GGATATTAGG GTCTTTAATG	360
TCTAGTAATT TTGTGATAAA ATGTAATTGT TCCATATGAA TCTTTCTAAT GAGTTGTTTG	420
GTCGCTTTC ATTATAGGTC ATATGGGACT TTTTTCTAC AATAAAATAG GCTCCATAAT	480
ATCTATAAGG GATTTACCCA CTACAAATAT TATAGAGCCA AAAATCCTTT GTTTACTAAA	540
CAAGGGATTT TTCTTTTGTC TCTGCTCCTT TTTTGATATA ATAGTTCTAT GTTAAATCA	600
GAAAAACAAT CACGTTATCA AATGTAAAT GAAGAATTGT CCTTCCTATT GGAAGGCGAA	660
ACCAATGTTT TGGCTAATCT TTCCAACGCC AGTGCTCTCA TAAATCACG TTTTCCTAAT	720
ACCGTATTTG CAGGCTTTTA TTTGTTGAT GGAAGGAAT TGGTTTAGG CCCCTTCCAA	780
GGAGGTGTTT CCTGCATCCG TATTGCACTA GGCAAGGGTG TTTGTGGTGA GGCAGCTCAC	840
TTTCAGGAAA CTGTTATTGT TGGAGATGTG ACGACCTATC TCAACTATAT TTCTTGAT	900
AGTCTAGCTA AAAGTGAAAT TGTGGTGCCG ATGATGAAGA ATGGTCAGTT ACTTGGAGTT	960
CTGGATCTGG ATTCTTCAGA GATTGAGGAT TACGATGCTA TGGATCCAGA TTATTTGGAA	1020
CAATTTGTCG CTATTTTGCT TGAAAAGACA GCATGGGACT TTACGATGTT TGAGGAAAAA	1080
TCTTAATGTA TCAAGCACTT TATCGAAAAT ATAGAAGTCA AAATCTCTCC CAGTTAGTTG	1140
GTCAAGAAGT TGTGGCTAAG ACTCTTAAAC AAGCGGTGGA GCAAGAGAAA ATAAGTCACG	1200

820

CTTATCTTTT TTCTGGTCCT CGTGGAACGG GAAAAACCAG TGTTCCTAAA ATCTTTGCCA	1260
AGGCTATGAA CTGTCCCAAT CAAGTGGGTG GCGAACCTTG CAATAACTGC TATATTTGTC	1320
AAGCAGTGAC GGACGGTAGT TTAGAAGATG TCATTGAAAT GGATGCAGCT TCTAATAATG	1380
GGGTAGATGA AATTCGCCAA ATTCTGTGATA AATCTACCTA TGCGCCTAGC CTTGCTCGTT	1440
ATAAGGTTTA TATCATAGAT GAGGTTTACA TGCTGTCTAC AGGGGCTTTT AATGCCCTCC	1500
TAAAGACGCT GGAAGAACCA ACACAGAATG TAGTCTTTAT TTTGGCCACT ACTGAATTGC	1560
ACAAGATTCC TGCTACTATT CTATCCCGTG TGCAACGTTT TGAGTTTAAA TCAATTAAGA	1620
CACAGGATAT TAAGGAACAT ATTCACTATA TCTTAGAAAA AGAAAATATC AGTTCTGAAC	1680
CAGAGGCTGT GGAAATCATT GCCAGACGGG CGGAAGGTGG AATGCGGGAC GCCTTGTCTA	1740
TTTTGGATCA AGCCCTGAGT TTGACACAGG GAAATGAGCT GACGACTGCT ATCTCTGAAG	1800
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AGGATGTTCC CAAAGCTTTG TCTTGCTTGA ATCTTCTTTT TGACAATGGT AAGAGCATGA	1920
CTCGTTTTGT GACCGATCTT TTGCACTATT TAAGAGACTT GTTAATTGTT CAAACAGGGG	1980
GAGCAAATAC TCATCATAGT TCAGTCTTTG TAGAAAAATT GGCACCTTCCT CAAAAAATC	2040
TGTTTGAAAT GATTGCTTA GCAACAGTGA GTTTAGCAGA TATTAAGTCT AGTTTGCAAC	2100
CCAAGATTTA TGCTGAAATG ATGACCGTCC GTTTGGCGGA AATCAAGTCC GAACCAGCTC	2160
TATCAGGAGC GGTGAAAAAT GAAATGCTA CGCTGAGACA GGAAGTTGCC CGTCTCAAAC	2220
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CCGTCGAAAA TCCTGATTTA GCACGTCAAA ATTTAATTCT TTTGCAGAAT GCCTGGGGAG	2400
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CTGCCAATGA ACACCATGCT ATTCTTGCTT TTGAGTCTAA CTTCAATGCT GGTCAAACCTA	2520
TGAAACGAGA CAATCTCAAT ACCATGTTTG GTAATATCCT CAGTCAGGCG GCAGGTTTTT	2580
CACCTGAGAT TTTAGCTATT TCCATGGAGG AATGGAAAGA AGTTCGCGCA GCCTTTTCAG	2640
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TACTCTTTAG AAATTTCCGA GTCAGTTATG TGATGGGCAA AATCGTTGAT GTCATCGATC	2940
AGCATTTTAA TAGGAAAGAC TAGCCCTCAG CTTCCAGACA AAATCAAAGC CTTTTAGGCT	3000

821

TTTTTTTGT ATACTAGAAA AGTATATTTA TAGAATTTTT GCTCTATTTT TGGGGAAATC	3060
AGACGTTTTT CTAGTAAGTA CTGTAAAAGT TTTGAAAAAG AAAGGAACTA TCATGTCAGT	3120
ATTAGAGATC AAAGATCTTC ACGTTGAGAT TGAAGGAAAA GAAATTTTAA AAGGGGTAA	3180
CCTGACCCTG AAAACAGGAG AAATTGCCGC TATCATGGGA CCAAATGGTA CAGGTAAATC	3240
GACTCTTTCT GCCGCTATCA TGGGAAATCC AAACATGAA GTAACATAAG GTGAAGTTTT	3300
GTGATGATGGC GTAAACATCC TTGAGTTGGA AGTGGATGAG CGTGCGCGTA TGGGACTTTT	3360
CCTTGCTATG CAATACCCAT CAGAAATCCC TGAATTACC AATGCTGAGT TTCTTCGTGC	3420
CGCTATGAAT GCGGGTAAAG AAGATGATGA GAAGATTTCA GTTCGTGAGT TTATTACTAA	3480
GCTAGATGAA AAAATGGAAT TGCTCAACAT GAAAGAAGAA ATGGCAGAGC GTTACCTCAA	3540
CGAAGGCTTC TCTGGTGGTG AGAAAAACG CAATGAAATT CTTCAACTTT TGATGTTGGA	3600
GCCAACATTT GCTCTTTTGG ACGAGATTGA CTCAGGTCTT GATATTGACG CTCTTAAAGT	3660
TGTGTCTAAA GGTGTCAATG CCATGCGTGG TGAAGGTTTT GGTGCTATGA TCATCACTCA	3720
CTACCAACGT CTTTTGAACT ATATCACACC TGATGTGGTA CACGTGATGA TGAAGGTGCG	3780
TGTTGTCCTT TCTGGTGGTC CAGAAATGGC TGCAGGTTTT GAACGTGAAG GATACGCAAA	3840
ATTAGCTGAA GAACTTGGCT ACGACTACAA GGAAGAATTG TAATCCCTC GTATCTTTTA	3900
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CACAGACTTT CACTCAGCTT TAGAAGAAAT TCCAGAGCTG ATCGAAGAAT TCTTCATGTC	4260
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TGCTGTACTC TATATTCCAG ATAACGTAGA AATCACAGAG CCAATTGAAG GAATTTTCTA	4380
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TTCTAAGATT AGTTATCTGG AGCGTTTAGA GTCACGCGGT GAAGGAAGTG ACAAAGCAAC	4500
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TAGTGAATG ATTGGTAATG GTAGCCATGC TGACCTCAAG GTTGTAGCTC TTTCAAGTGG	4740

822

TCGTCAGGTA CAAGGGATTG ATACTCGTGT AACTAACTAT GGCTGCAACT CAATCGGAAA	4800
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CGTGGAGATT CCAGTCAAGG AAGTTCGTGA TGAATGATT GCAACTATCG AAGAGAAAT	5160
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AAAAACCACT AGTAGTTCG AAAGCTATTA ACAGCTACTA TGAGCAGGAC AATGCCAATG	5340
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CGACAACCAG CCTTAACTGG GTGGCAGCT TTGCTGAGGA AATTCTCACT GAGGGAGACC	5520
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GAAAGACTGG AGCAGAGCTT GTCTATGTCT ATCTTAAAGA CGGTGCCTTG GATATGGAGG	5640
ATTTGCGAGC TAAATTGACT GATAAGGTTA AATTTGTTTC CCTAGCTCAT GCCTCCAATG	5700
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TCCCAGCAAC AGCTCGTGCA AGTTTTTATA TCTACAATAC CAAGGCAGAT TGCGACAAAC	6360
TAGTCGATGC CCTACAAAAG ACAAAGGAGT TTTTCAATGG CACTTTCTAA ACTAGATAGC	6420
CTTTATATGG CAGTGGTAGC AGACCATTCG AAAAATCCAC ATCACCAAGG GAAGTTAGAA	6480
GATGCTGAGC AAATCAGTCT CAACAATCCG ACTTGTGGGG ATGTCATCAA CCTCTCTGTC	6540

823

AAGTTTGATG CAGAGGACCG TTTGGAAGAT ATTGCTTTTC TAAATTCAGG ATGCACGATT	6600
TCAACTGCTT CTGCTAGTAT GATGACAGAT GCCGTTT TAG GAAAAACCA ACAAGAAATT	6660
TTAGAACTGG CGACTATTTT TTCTGAAATG GTTCAAGGGC AAAAAGATGA GCGTCAAGAC	6720
CAACTTGGAG ACGCGGCATT CTTGTCAGGT GTTGCCAAAT TCCCTCAAAG AATCAAGTGT	6780
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AAAGAGTAGA ACCAAAACCA ATTGACCTTG GTGAATATAA ATTTGGTTTC CATGACCATG	6960
TAGAGCCTGT CTTATCGACA GAAAAGGAC TCAACGAAGG TGTATTTCGT GAATTATCTG	7020
CTGCTAAGGG TGAGCCTGAG TGGATGTTGG AGTTCGTTT GAAGCTTAT GAAACCTTCA	7080
AAAAATGCC CATGCAAACT TGGGGAGCAG ACTTGTGAGA GATTGACTTT GATGACTTAA	7140
TCTACTACCA AAAACCATCT GACAAACCAG CCCGTTCTTG GGATGATGTA CCTGAAAAGA	7200
TTAAAGAAAC CTTTGAACGT ATCGGGATT CAGAAGCTGA ACGTGCTTAT TTAGCAGGGG	7260
CTTCTGCCCA GTACGAGTCA GAAGTGGTTT ACCACAACAT GAAGGAAGAG TTCCAAAAAT	7320
TAGGTATTAT CTTTACAGAT ACAGATTCCG CACTCAAGGA ATACCCAGAC TTATTTAAAC	7380
AATACTTTGC GAAGTTGGTA CCGCCGACAG ATAACAAGTT GGCAGCCCTC AACTCAGCAG	7440
TATGGTCGGG TGGAACTTTT ATCTACGTGC CAAAAGGTGT CAAGGTAGAT ATTCCACTTC	7500
AAACTTATTT CCGTATCAAT AACGAAAATA TAGGTCAGTT CGAACGTACC TTGATTATCG	7560
TTGATGAGGG AGCAAGCGTC TACTACGTAG AAGGATGTAC AGCACCAACA TATTCAAGCA	7620
ATAGCTTACA CGCTGCCATT GTAGAAATTT TTGCTTTGGA CGGAGCTTAT ATGCGTTATA	7680
CAACTATCCA AAACTGGTCT GATAACGTCT ATAACCTGGT AACAAAGCGT GCTAAGGCTC	7740
AAAAGGATGC CACTGTTGAG TGGATTGATG GAAACTTGGG TGCCAAAACG ACTATGAAAT	7800
ATCCATCTGT TTACCTTGAT GGAGAAGGAG CGCGTGGTAC CATGCTCTCT ATCGCCTTTG	7860
CTAATGCAGG GCAACACCAA GACACGGGTG CTAAGATGAT TCACAATGCT CCACATACCA	7920
GCTCGTCTAT TGTGTCTAAA TCCATCGCTA AAGGTGGAGG AAAGGTTGAC TACCGTGGAC	7980
AAGTCACCTT TAACAAGAAC TCTAAGAAAT CTGTTTCCCA CATTGAATGT GATACCATTA	8040
TCATGGATGA CTTGTCAGCA TCAGATACTA TTCCATTAA TGAAATTCAC AACTCGCAAG	8100
TGGCTTTGGA ACACGAAGCC AAAGTATCTA AGATTTGAGA AGAGCAATTG TATTATCTCA	8160
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CCTTTACAAA AGAACTCCA ATGGAATACG CAGTTGAGCT GAACCGCTTG ATTAGCTATG	8280

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ACGTCAGCAT CGCCTTACCG TATGTATGGT TwCTGAlTCG TCAGTTTCAT CTACAACCTC	8400
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ATCGCGATTT TTTATAATTT CTCGTTAACA AAGCGGACAA ACTGATTCCA CCAAACCTTT	8580
AAGAAGAAGG CTTTTTCAAT TTTCTTGCTT GCTACCATTT CGAAACTAGG GCGTCTGTG	8640
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CCAGCTTCAA GTGGTGCTGG GATTGCTTTG GAATCAGGTG TGAATTGAAC AGATTGGGAA	8760
GATTGATTCC CAACACGTTT GATTAGATAG ATATCCTCTG GAGCCACTGC AGTTACTGTA	8820
TCTTCTTTTC CATCTGTAC AGGGGCTTG CTATCTTGAT AGGCATCGCC TTGTGAACG	8880
ATTTTGCAGG GTGTAAATGT AGAAGAAATA TAATCCATTA GGAAGATGT AGCTGTAAAT	8940
CGAGCGTAAG GATTATTGTC TTGATGATCT GCATTTAAAA CAACTGTGAT GACTCTCATG	9000
CCTTTTTCGA CAGTAGTACC AACAAAAGAC TCTCCAGCCT TATCTGTTGT TCCTGTTTTT	9060
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GATACCAGAG TTGCTTCAAG CAACTCTTCG ACAGTATAAT TACGGGCCTC CATAGGAATA	9480
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TTTGACCAC AGAAATTTTA CTCTTAACCA TCATCTTTTA CCTATGGAGA CAGATGGGGT	9960
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GCTTTTTTTA TTATTTGACA AACCCTATTG TTACTTTCTT AAATAAAGTC TGTAAACTCA	10080



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ATCGTTTGCT TGGTATTTTA ATTACCTTGT GTACTTTGGT CTGGGGAATG GTCATAGGTG	10140
TTGTCTATCT CTTACCTATT TTGATTAATC AGTTATCTAG TTTGATTATA TCTAGTCAAA	10200
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ACGCTCAGTT AAATATAACT GCAAAAAATA ACATTCTTA CGCTCTAGCT GCCTAAAAAC	11640
CAGCAGGCGT GACCCGATTT GGATTGCTCG TGTTCATGA CAGGTCTTAT TATTAGCGAG	11700
ATACGATTAA GCCTTGTCTA GCGGTTTGAT AAGAGATTGA TAGACTCGCA GTTTCTAGAC	11760
TTGAGTTATG TGTCGAGGGG CTGTTAAAAA AATACATAAC CTATGGTTGT AGACAAATAT	11820

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GTTGGCAGGT	GTTTGGACGT	GGGTTGACT	CCCACCGGCT	CCATTATTCC	TTTGCATTCT	11880
TTTGCATTCC	TTGGTAAAAC	GTTGTAAAT	CAACGTTTTT	TATTTTATC	TTTGGTATTC	11940
CTTTGCATTC	TTTTGCTAAA	AAGGGAGTCA	CAAACAGACC	CTATTTTAAA	AAAGGATAGA	12000
AAAAAGGATA	CAACATTGT	CGCATCCTAA	AAATAATCTT	TTTTCGACGG	AAGACATGGG	12060
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CTTGAGTAAT	CTTCCAATAC	TTACTCAAAT	AGTCTACCAT	AAAGGCTCTT	ATCTTGCAAT	12180
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TAGAAAAATT	AGTTAGTTTG	CTAGAAACGT	CAGAATCAAC	GGTTCGAAGA	GACTTGATG	12420
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TACAGGAAGA	AGAAACCATT	CAAGAAAAAT	CTGTCAAAAA	CCTTCAAGAA	AAGAAATTGC	12540
TGGCTCAGAA	AGCAGCCTCT	CTCATTAAAG	AAAAAGATGT	CATCTTTATC	GATGCTGGAA	12600
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GGGATTTATC	GGTGGCTTTA	CTGGTAAATT	TATCACAGAT	ACTTTAGCAG	ACGAAGAAAT	13260
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TCTTGTAATA	CCAAACAATC	ATGAACCTGG	AGCGATTTTT	GGGGTTAAAC	TCGAAAGTTT	13620

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AGATGAAATT GAGAAATACG CTCGTGAGTT ACTGGCTAAG GGTGCTCAAA ATGTTATTAT	13680
CTCTATGGCT GGTGATGGTG CCCTTCTTGT CACATCTGAG GGAGCTTACT TCGCTAAACC	13740
AATCAAAGGA ACAGTCAAAA ATTCAGTTGG AGCTGGTGAT TCTATGGTTG CTGGATTACAC	13800
AGGTGAATTT GTCAAATCAA AAGACGTAGT AGAAGCCTTC AAATGGGGAG TGGCTTGCGG	13860
AACGGCAACT ACCTTCTCAG ATGACTTGGC AACGGCGGAA TTTATTAAAG AAACATATGG	13920
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CTAGATTTGC AGGCAACTGA AAAACAGCT GTCATCGACG AGATGATTAA AAATTTGACA	14040
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AAAGAAGCGA CAGTTCTATT TGCTAAGTCA AATAAGGGTG TTGACTACGA GAGCTTGGAT	14220
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TTGGCAGCCT TGGCAGAATT GTCTCAATAC TTGATGAAAG ACGGTTTTGC AGACAAACTT	14340
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TGTACAACAG GTATTGCCCA CACTTACATG GCCCAAGAAG CCCTTCAAAA AGTAGCTGCT	14520
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CTTGTGGTG GATTTATCGC AGGTGCCTTG GTTCTTGCCA TCAAGAAATA CGTTAAAGTT	15240
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GACTTCCTAG GCGGTCTTGG AGGAGGTTCA GCTGTCCTTC TTGGTATCGT CCTTGGTGGA	15420
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AGTCAAGCCG GCTGTTGGTG TAAGGGTCAA CCGCATTTCC AATCTATCAG ATGACCTCGC	17100
TCTAGCCTTG GCTGCCAAAG ATGTCCGGAT TGAAGCACCA ATCCCTGGGA AATCCCTAAT	17160

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CGGAATTGAA GTGCCCAACT CCGATATTGC CACTGTATCT TTCCGAGAAC TATGGGAACA	17220
ATCGCAAACG AAAGCAGAAA ATTTCTTGGA AATTCCTTTA GGGAAGGCTG TTAATGGAAC	17230
CGCAAGAGCT TTTGACCTTT CTAAATGCC CCACTTGCTA GTTGCAAGGT CAACGGGTTC	17340
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TCECCACCTC TTGATTCCAG TCGTGACCAA TCCACGCAAA GCCAGCAAGG CTCTGCAAAA	17520
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AGTTGCTGTT TTCTGATCTT CTTTTTCTC TTCCTTGACG CTAGATTTTG GTGTTTCTC	18480
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GGATTCCTTT TGGATTTCTT TGACAATGGT TGTCGTCTGG CTTGTCGTAG GTTCTTTTTT	18600
AATATTTTGT TTATTATCCA AGGCGTT	18627

(2) INFORMATION FOR SEQ ID NO: 114:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 2560 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 114:

TAAAATACGT TACCTTGCTT CTGCACGTTT AGCAGGTAAG TCATTGAAAT TTAAAGATCA	60
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TTCAGCAGGT AGTTCTACAT CAGCTAAGTA TGCACCATAC GCAGTAAAAG CTGGCGTGGT	180
AGTAGTAGAT AATACATCTT ATTTCCGTCA AAATCCAGAT GTTCCTTTGG TTGTTCCAGA	240
GGTCAATGCT CATGCACTTG ATGCTCACAA CGGAATCATT GCCTGCCCTA ATTGTTCAAC	300
AATTCAAATG ATGGTGGCTC TTGAGCCGGT TCGCCAAAAA TGGGGCTTGG ACCGTATCAT	360
TGTTTCAACT TATCAAGCCG TTTCAGGTGC TGGTATGGGA GCAATTCTTG AGACACAACG	420
TGAACTTCGT GAAGTCTTGA ATGATGGTGT GAAACCACGT GATTTGCATG CGGAAATCTT	480
GCCTTCAGGT GGTGACAAGA AACATTATCC TATCGCCTTT AACGCTCTTC CACAAATTGA	540
TGTTTTCACT GATAATGATT ACACGTACGA AGAGATGAAG ATGACCAAGG AAACCTAAGAA	600
AATTATGGAA GATGATAGCA TTGCAGTATC TGCAACATGT GTGCGTATTC CAGTCTTGTC	660
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CTTTGAAATA GAGAGGTGTT TTCGTGTCTT ATCAAGATTT AAAAAATGT AAAATCATT	1080
CAGCCTTTAT TACCCCTTTC CATGAGGATG GTTCCATTAA CTTTGATGCT ATTCCAGCCT	1140
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ACTACAACAA ACCTTCTCAA GAAGGGATGT ATCAGCACTT TAAGACTATT GCAGATGCTT	1440
CTGACCTACC AATTATTATC TATAACATTC CAGGGCGTGT AGTTGTGCGA TTGACTCCAG	1500
AAACCATGCT TCGCTTGGCT GACCATCCAA ATATTATCGG TGTCAAAGAA TGTACTAGCT	1560
TGGCTAATAT GGCTTACTTG ATTGAGCACA AGCCTGAAGA GTTCTTGATT TATACAGGTG	1620
AGGATGGAGA TGCTTTCCAT GCCATGAACC TTGGGGCGGA TGGGGTTATT TCTGTTGCCT	1680

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CTCATACAAA TGGGGATGAA ATGCACGAGA TGTTTACTGC GATTGCAGAA AGCGATATGA	1740
AGAAAGCCGC AGCAATTCAG CGTAAATTCA TTCCTAAGGT TAATGCTCTC TTCTCTTATC	1800
CAAGTCCTGC TCCAGTTAAG GCAATTCTTA ACTATATGGG ATTTGAAGCT GGACCCACTC	1860
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AAAGACAATA AAATCCGGCT CTTTGTCAAC TGTAGTGGGT TGAAGTCAGC TAAGCTCGAG	2040
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TCGCTTCCAA TTTGGCGTTT GAATAGGTA GTTGAAGGGT GTTGACGATT TTCTTTTTGT	2220
CCTTTAGAAA GGTTTTAAAG ACAGTCTGAA AAATAGGATG AACCTGCTTC AGATTGTCCT	2280
CAATGAGTCC GAAAAATTTC TCCGGTTCCT TATTCTGAAA GTGAAACAGC AAGAGTTGAT	2340
AGAGCTGATA GTGATGTTTC AAGTTTGTG AATAGCTCAA AAGCTTGTTT AAAATCTCTT	2400
TATTGGTTAA GTGCATACGA AAAGTAGGAC GATAAAATCG CTTATCACTC ACTTTACGGC	2460
TATCCTGTTG AATGAGTTTC CAGTAGCGCT TGATAGCCTT GTATTGGGA TTTTCGATGA	2520
AACTGATTCA TGATTGGAC ACGCACACGA CTCATAGCAC	2560

## (2) INFORMATION FOR SEQ ID NO: 115:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 11303 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 115:

TATTGGATTT CCCTTGCAAT CAGTTTATGG GACAAGCACC CGGCAGCGCA GAGGAAATCA	60
ACGCCTTCTG TAGCCTACAT TTTCAAACCA CCTTCCACG TTTTGCCAAG ATTAAGGTCA	120
ACGGTAAGGA AGCAGACCCT CTCTATGTCT GGTACAAGA CCAGAAATCC GGCCCACTAG	180
GAAAACGAGT CGAATGGAAT TTCGCTAAGT TTCTCATCGG TCGAGATGGG CAAGTCTTTG	240
AACGCTTTTC TTCAAAAACA GACCCAAAAC AAATTGAAGA GCGGATACAA ACTCTACTAT	300
AATTCACAAT CTCACTATGA TTAGGTTTCC TTAAACCTGA TGAATAGTGA GATTTTTTGA	360
TGGGCTTTGA CTTAAATAGA AAAACACCCC ATGATATGAA ACATGAAGTG TTGTAAAGTC	420
TATGTTGTAG GTGCTTATTT CACAATTTC ATGTGACCAG TGATAACGAA TACCATACAG	480

832

AATCTTCATA TACACTAAAC AAATGACTTT CTAATTATTT CAATTAGTTT TGGCTAGTAA	540
ATATCATTTT CAACAAACGC CCTCTCAATT CCTTATCCTG ATGATGCAAG ATATTCATTA	600
AGTCATGAGA GTTTTTTCGCA TTGATGAATT GATTTAACAA TCTATCTTTT AATTCATATG	660
GAAGAGAAGC TGTCTTTAGT AGTCTAAAAA CTTTCGTCATT TAAAGATGTC CTTTTATTAT	720
CTTTCCATTG AAATTTAGCT GTATCATTTCT TATTTGGCAA TTCAATTATA GACACATTCG	780
TTCTTTTAAA ATGAAATTCTA TGTTTTCTAT TGCTTGGAAC GATACTAGAA TCTCCTTGTA	840
ATGCTAACTC TACCATTCCC ATTTCCCAAT CGATTGATAA TCTTGTTTTA TATCTTTGAC	900
CATTTTGATC TTCAAGCATT TCAAAAGAAT GTTGTTTTCC TGGGAATACA TACCAATCTA	960
CAACTTCAGG TAAATCAACA CCCATACCTA TCTCAGAACC AACCAAGGGA ATGATTGCAC	1020
CACTTTGTGC AAACACAGGC GTAGTCGAGA TGTCCCTATA AACACTTAAC TTCACACCAC	1080
CTGTGTATTT TTTCTCTGAA AAGAAGTCAT ACCATTCAAC TTCAGGGAAC CATACATCTA	1140
CTTTTGCAGA TTGGAATGTC AAATCCATCT TTTCTACAAT GGGAGCCACC ATCAGTTCTG	1200
TTCCAAAAAA GTATTGGTTT GGAACATTAT AGCTCTCATC ATTCTCTGGA TAGAAATAAT	1260
AGATTGGACT GATTAATGGG GCACCTTCCT CATGTGTCCTG TACATTATG ATATATAGAT	1320
AGGGAATCAT CTGATGTCTC AAACGAAGGT ATTTCTTCAT AATCTTAGAT GTTGTTTCTG	1380
AAAAAAACCA AGGTCTTTTA CTATTAAAAG GACTTCTAGA ACTATGTAAT CGAGTAATCG	1440
GACTAAAAAC ACCAACTGT AGCCATCTAG TTTGTAGCTC TTCGTCATAA TCCCCAACA	1500
TATGTCCACC GATATCATGA CTCCACCAAC TATAACCGAT ATTAGATGCT GTCGCTGTAA	1560
AATAGGGTTG AAATCTTAAG GAATTCACAC TAATAATAGT ATCCCCTGAA AAACCAACAG	1620
GGTAGCGGTG ACTACCAGGA CCTGCATATC TTGATAAAAT CAAACCACCT TCTGCATTTT	1680
TACAACTATC CTGATAGTGA TAATGGTTTA AAAGCCAAAG TGGATCTAGC ATACCTTGTTG	1740
TCCCTTGTTG CCAGTCAATC CACCAAAAAT CTACTCCCTG CTTTTCTAGT TCATAATGAA	1800
CATCTTTAAA GTAGGCTTCC CTAAGAGAGG GATTAAAAAA ATCAAAAATA GCAGGTTCTT	1860
CTAGTTCTAC ATTTAACCCC AACCGTTTTG CGATTTGAGG ATAAGCTTCT TCATAAGCCC	1920
GTATCCCATC AGCAGGATGG ACATTTAAGG AGAGTTTTAG CTTTCTATCA TGAAGTTGTT	1980
GCAATAACTG TTCTGGATTT GGTATTAAGT TTCTATTCCA ACTATATCCT GTCCAGCCAC	2040
TTCCAAAGCG AGCTGGAATG TCAGTTATAT GCCAATCCAT ATCTAACACA CCGATAGATA	2100
ATGGAATTTT CTCTGTTTCA AATCTGTCTA TTAAATCCAA GTATTATCC GACGTATAAG	2160
GCCAATATCT ACTCCACCAA TTGCCTAAAG CATATCTTGG CAACAAGGGT GTTGAACCAG	2220
TCAAATGGTA AAAATCTCTG ATTGCTCCTC TATAATCATG CCCATAGGCA AAGAAATACA	2280



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GGTCAATTTG ATTTTCTCTC TCAATATAAC CAGATTGTTT ATCCCAAATA AATCCTTGAG	2340
AATCATCCAA TAAGGCTATA CCATTTCTGGC TAATAATTCC ATCTTCTAAC GAGATTGCTC	2400
CATCTGCCTT ATCCAGAGTC CGAGCTGTTT CTTTAAACGT TTCAATAGAT TCACCAAAAT	2460
ACCAGCGACT ACCATATACG GCAAAATTTC CTTTAAATTC TATAAATAAA TTTTCGGCGT	2520
TAAATTCCTC TTTATTAAAG TGCAGATGAA AATAGTCCGT CATAATATCT AGTACGTTTG	2580
ATGTCTCGAT ATAATCTAAC GAAATTTGGC CAAATCTCT ATTATAGATA AGTTGTGTCG	2640
TTCTATCCTC AAAACTTCCA GTTTGAGAGT ATTCTAACCT TACTAGCTTG TCTGTTAATA	2700
CAGAGATTCG ATAAACTCT CCCTTAAAAA TTTCAATTT GTTTCTCTCC TTTTATGGTA	2760
GCATAAAAC AGAACGCACC ATTTTGTATG CGTTTTCAT TATTCTGAAT GCAATGTCT	2820
ATCTGTTATA TCTATGACAA ATAATAGTCA ATTGAAAAA TGCAGTGGAC AAAATATCTT	2880
TTAACAAACC AAGAGTTTAT TAAAGAGTTA TCACCTTTCA ACTTTTCTAA GCTTATGCAG	2940
TTGTGAAACA AACTACTTTT AAATATTAA CTAAGATAGG ATTGATAAAT AATTTCAAAC	3000
TCTTACTAGC AATCATACGA TATTCAAGCT CACGTGCTTT TTTCTTCTT GCTTATTTCT	3060
TAGAACTGAA GAACCCGGAT CGGTATATAA ATTATCCGGA TCAACATAGT CATAAGATTC	3120
ATAACAGTTG CGCTTCATTA AGTCATCCCC AGAGCAAGAG CTTATCTCG TAATTTTCA	3180
ACATCACTAA CCGTAGGTCG CCATCCTTCA ATCATATTTG TACTTAAAGC ATACCAAACA	3240
CTCTTAAAAA CGGATCGGTT TTCAAAAGCT ATTCCCATGA TTGTCATCTT TTCTTTATCT	3300
ATATCTAAGG ACATATGCTA CCTCCTTTAG ATACATTATA CCATGTTTCT CTGTAGCTTT	3360
TAAAAATTTT ATTTTGTGTT TCATATCTAA GTTTTCAGCA CGCTTATCCT ATTTTATAAG	3420
CCTCAAACCC AAATATAAAA CGCATTCTTT TTGCTTTTTT ACTATTGTAT CGTATTCTAC	3480
GATAACATAC TTTACTTTAT TGTTTTTTTA AATAACAGCA GTTCCCTGTT TATCAACTAT	3540
TCGAACTACT TTCTATTTTG CTTCATACCC TACATAGCGA AAAAATATGA AAAAGCAGAG	3600
AAGAATATCT TAAAAAGACC TCTTCACTGC TAATATTAAC ACTCATTATT TAACTATAT	3660
GGATTCTATC ATCGAGTATA CTTTTTACT TATTAGATAC CTTGCTCTTC TTTCACCAAT	3720
TTTTGATCAT ATACACGGAT GAATGGAAGA TAGACTAGGA ATGCTGCAAA TGCACATACT	3780
AGAGCAACTA ATACAGCTCG AAGATCTGCT GTCCCTAAGA AAGCTCCAAT CCCTACTGGA	3840
GTTGGCCATG GAACCTGTGC GATAATTGGC TTAATAAAGT TTAGAGAATT CGCTACGTAA	3900
TAAATAGTAG CAGTAACCAT TGGTGCTAAA ATAAATGGTA TAGCCAAGGC TGGATTATAG	3960
ATAATAGGTA ATCCAAAAAT TAATGGTTCA TTAATATTAA ATAAGGCTGG AACTACAGAT	4020

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GCTCGTCTTA	TTGCTTTAAG	CTGTTTCAGAT	TTAGAGGCAA	AAGCAATATA	TAAACATAGT	4080
CCTAAAGTTG	CACCAGAACC	ACCTGCAATT	ACAAACATAT	TAGAAAATTC	ACCTGCAACA	4140
GCGAAGTGCC	CGCCAGCAGC	ATTTTCAGCC	ATGTTAGCAA	GAGCAATTGG	ACTAACAAAT	4200
GCAAAAACAA	TGTTTCGCACC	GTGGATACCT	ACAATCCAAA	GTAGTTGAGT	CAATAGATAA	4260
ATAATCATTA	AACCAATCCA	CGAATTAGTC	AGATTGGATA	CAATACCAAA	TGGAATTGCA	4320
ATGACTTTAA	AAATATCTGT	TCCCATTGCT	ACAAGAAGAC	CGTTGATAAA	GATAACAACA	4380
AATGCAACAA	CAAATCCCGG	AACCAAAGCG	GTAATCCAC	GAGAACTCC	TTCTGGAACA	4440
GCTTCAGGCA	TTTTAATAAC	CCAATTATGT	TTAACACACA	TACGATAAAT	AAGAACAGTC	4500
ACAATTGCCA	TAATGATTGC	GGTAAAAATC	CCTGTTGTCC	CAAAACGTGC	GACTACATTT	4560
CCCATTGCCC	ATCCATCTGC	AATTACTGCA	CCTTCTTTTA	GACTTGTCAC	AGTCTTCATC	4620
ATTCCACCAT	CAAAAATGAT	TTGCGGTACT	GTCATGACAA	AAGCCATCAA	GGCAAGCAAG	4680
GCACCATTAA	GAGGATTCAT	ATTGAGTTCT	TCTTCTCTG	CATAAATTTT	TGTCAATTCA	4740
TATGCAAGTG	ATAGAACGAA	ATAAAGAGAT	AGAGAACCCA	TAGTCGCATA	GTTTGCAACC	4800
ATGTAAAGTG	ATGTGAATTT	ATCAAATGAA	GCAGAGAAAA	TATCTGCCAC	AATTGGCCAA	4860
AATGAGAAAG	CTTGTGGCAA	AATACTGAAT	ACCAAAAACA	TTGATCCTAC	AATAGTAAAT	4920
GGTACAGCAG	CCATACCTGC	AGCCGTGATA	GCACGTACTA	CTTTAAACTG	AGCAAGTTTG	4980
CCCATTGGTC	CCATAACATG	GTTTTCAAGA	AAACCAAACA	ACCCGTTTTG	TTGATCCATA	5040
AATAGACCTC	CTTAATAAAA	CATAATAATT	TTTACTTTCT	AAAGACTAGT	TTCAAATACA	5100
AATTATACTA	GATCAGGATT	ATAAACTAAG	TGAGTTCTTT	TCCAATTGGA	CAAATTGTTG	5160
ATAAGCCTTA	TCTGTTCGTT	TATAAATTTT	TTTAATTCTT	CTAATGTCTA	ACAAACTCAG	5220
AACTAAACCT	AATAGAAGAA	CTACAAAAAC	AAATAAACGT	GCTACTTGGT	TATTTTCAAA	5280
AATCGGAAAA	AGATTCTTAA	ACCAACTTGT	CCAAGTTAAA	ACAAGTAATC	CTATTGAAAT	5340
AAGCATTGTG	ATTCTAACAA	ACATTAGTGT	TATCCCAAC	TTTTCTTTCC	TATTTCCATA	5400
AAGTTTAAAT	TGTTCAACAG	TTGCTAAAAT	AGAAAATACT	ATGAGCATAA	TGGGGAAAAT	5460
AATAATAGGC	GAGGGACTAA	TAACTGACT	CAAAAGCCAA	TAAATATTCC	CAAAAAAGAA	5520
GAGTGCTATT	GAATAACGTA	GAAGAAGATA	TCGATTGAAA	AAAGTATTAG	TTAGAGCCAT	5580
CTCTCGACGT	TGTTGTTCAA	TCTTTTGTG	TTCTTTTTTA	TCCATATCAT	TTCTCTCTTA	5640
TATAACAACA	CATATTTAGT	TAACCTTCTT	ATAAAGAGCT	AACATTTCTT	TTGCTACTTC	5700
TAATAATGTC	ATAGTGGTCA	TTAAATGATC	TTGAGCATGT	ACCATGATAA	TTTCAATTTT	5760
AATTTCCACT	CCACTTGCGT	ATTCTTGCAA	GAGTTTGTTT	TGTGCATGAT	GCGCTTCAAG	5820

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AATTATCTCA TTTGATTGAT TTAATTTACT TTCTGCATCA TCAAACTAC CTTCTCTCAT	5880
TTTGTCAAAT GCTTCATGTA TTTCTGACCT TGCATTTCCC GAATGCAGGA TAATTTCAAA	5940
TGCTGCAACC TGCAGTTCCT CTTGATTCAT ATAAACCTCC TATTTTATCT TCTCAAATAT	6000
GTAAATAAAA TCTTCAAAGT TATTGCAAGA TATTAGCTGA TTTTGCAATT CATCATTTCTC	6060
TGTCAGAGAG ACTATCTTTT TAGTCACAGT TGCCAAACCT TCGTTCCCAT ATATTGATGG	6120
AGATAGAAGA AATACTAGCT GGACATGTGA ACTTTGATTA TCCCAGAGTA ACGAATCTTT	6180
ACAAATTGCA ACCGAAACCT TTCCCTCTGT ACCAAAGGGC TGAATAGGAT GCGGAACGTC	6240
AATTTTTTCA GAAAAACAA CTGAACTTAA TTCTTCGCGC TGTTTAATTC CATAAAGTAA	6300
AGATTGTTCA AACTCATTTG ATTCACCAAC AGATAAACTC TCAACCATCT TTTCAAGTAA	6360
ATTTACCTTG TCTGATTCAG TACATATTAA AAAGTTTTCT TTAATAAAAT ACTGTCTAAA	6420
GCCGTTGTTT TCAAATTTGT TAATCTTTGA TGATTGTACA TAACTAGAAA CTTGCATCTA	6480
ATCCATAGCT TTTCTAATCA TTTCCATCTC ATCACTCTTA AGAAACACAC TAACTTTAAA	6540
AACTGGGATT TGAAAATATA GATTTGATAA ATCAATAGCT GACACTATAA AATCTATTCC	6600
TTTAAGTTTT TCTTGATTCA ATTCATAGTA GCCTATTACA TCAACAACTT CTAATCGCTT	6660
CCCAAACCTC GTTTCCAAAC GATTTCTTAA CATTTGGGCT GCACCAAATC CTGTTGCACA	6720
AATAGCAAGA ATATTAACT TAGTACTCTC TTTGCTACGT TCCATAGCAG CTAAAAAGTG	6780
AAGACTTACA TATGCTACTT CATCATCTGA TATTGTCCAC TCCAAGAACT TGTCCATATT	6840
TGCAAGAAAT TCTCTAGTCA TAAAGAATAT ATCACTATAA TTCTGTTTAA TTTTCATCTAC	6900
CAAAGGGTTA TTTAAGGTAA TCCGGCTTTC TAAACGTACT TGTAGTGTCA TTAGATGAGT	6960
TATCAATCCT TCAATTAGTT GGAAATCTGA AGAAAAGTTA TACATATCAT CTAATCCTAA	7020
ATTCTGAAAT GTTTTAAATA AAGATTTTTT TAAAACCTCT TCAGAAATAT TCTTCTGATT	7080
TTTTTGACAT TGTGACTCT TAGCTAACAA ATGCAAAGTA ATGTAGTCTA TTTCTGTAAC	7140
TGGAATTTCC TGATTTGTTA CTTCTCTTAC TTTAGAAAGA ATTCTTTGGG CAACCTTTCT	7200
CTCTATTGCA TCATCAGTCA TCTGACAGTC TATATTTTTT ATTTCAAATC CGGATTTTAA	7260
ACGAATCACA GACAATGCTA TGTGAACCTAC TAAATCTGT AGTACAAAAT CAGATAGTTT	7320
TAGGTTGGCC TCTTGGCATT CATCCAAAAC AATTCTAGCA AATTCTTCTA ATGGAACAGT	7380
TTGATCAAAA AAGTTAAATT TTACATAGCA ATGTATTGTT TTAATAAATT GATTCTCTAG	7440
GAAATAATTT ATGATAAAAC GTCGTTTATC ACGTTCCTCG CCTGAGACAT AAACCTCTTT	7500
ATTCGCCCTA CTCTCAATGG ACAAATTATA CTCTGATAAC ATCACTCGTA TCTTTCTGAA	7560

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ATCATGAGAT AATGTTGAAC GACTAACGTA AAGTTCATCA GCTAAATCAT CAAAAAGAAC	7620
TGGAACCTTGC TCAAATAATA ATTTATTTAA GATAAATACT AAACGATCAT CACCTTTTGA	7680
AACCGCAGTT TTCGTATAGT CTTCTTCCAG TTCATAAGTT TGTCTAAACT CCTGGTAAGC	7740
GCCTTGATTG TCAAAAAATA TTTGATACCC TTGACCTTGT TTTGAAATCA ACCGGACTCC	7800
TTGAATAATC ATTGTCTTCT CAATTAATTT CAGTACATTA CGGACAGTTC TATCTGAACA	7860
GGATAAATAT TCTGCCAGTT CTTTGCTTGT AACAAAACGT TCCTTATTTT TTATTAAAAA	7920
TTGAAGGATA TCTTCTCTT TAATGTTTAA CACATTCATT CCTCCTAAA ACGTATGTTT	7980
TCATATATTG AAGCATATTA TACACTTAAA TCAGTTTATA TCAAACTCAA AACAATTTAT	8040
CTTAACCTAA ATATTTATTG ACATTTTCATG TGTTCATCAA ATATTCTCAA GAATCAAATT	8100
AGCCATTTTT TCAATTCCCA TTGGAATAGG AATATAGGCT TGAGGAGGTA TTTGTACAAC	8160
TGGTTTTCTT GCTTTAGAAC CAGCCTCTTC AAATTGCTTA AAGTACATTT TTGTTTGAGG	8220
ACTGACAAGA TACAAATCAA AAGCTGCTGC TCGGATAGCT TTCCCTCCTT CAGTAGCACT	8280
AATAGCATCA ACTACAATAT CTTTCCCTTT TCCTTTTAGA AACTCTGTTG TTTCTGTGC	8340
CATAAGTGAT GAAGACATTC CTGCTGCACA AATAATTAAA GCTTTTGCCA TAATATTTTC	8400
TCCTTTTCTT AAATCCAATC AAAGCTGTGC TAAGTTGGCT TATTTGTTAT CTATTTTAT	8460
TATAAATAA AGCGTTTCCA ATGACAATTC CCTCATTTTC CTAAATGATA TGGAAAAAAA	8520
TTATTTATAC TTCAATTTAT AAAATAAAAT TATTCCTGAG AGTAGAAATG AAACACTATT	8580
TGCTAAAATC AAAGGCAAGT CTCCTATACG AATACCATGA GCAAGCCACA ATGCAATACC	8640
AATAACTTGC ATAACATACA TACCTAGAGC AATAGATCCT GTGTCCTTTG TCTTAACATC	8700
ACGAAAAACT TGTGGTAAAA ATGCAAATGT TGTTAAAATT GCTGCAATAC TTCCAATCAT	8760
ATGTCACCTC AATATGCTAA ACAAACTGAG AATAATCTCA GTTTGTTTAT ACTATTCTAC	8820
TGATTCACCG TTAGATGAAA TAACTTCCTT ATACCAGCCA AAAGATTTTT TCGGGGAACG	8880
ATTATAACTT CCCTTCCCAT TATCATCTTT ATCTACATAA ATAAAGCCAT AACGTTTCCG	8940
CATTTACCG GTACCAGCTG AAACCAAATC AATACATCCC CATGGAGTAT AACCCATTAA	9000
ATCAACACCA TCTTCAACTA CAGCCTTTTT CATTTACGA ATATGGGCAC CTAGATATTC	9060
AATTCTATAA TCATCATGTA CCATACCATC TGCTGCAACT TGATCTATAG CTCCAAAACC	9120
ATTTTCAACA ATAAAGAGTG GTAAGTGATA GTGGTCTGTA AACCAATTTA ACGCATAACG	9180
CAAACCTTCT GGATCAATTT GCCACTCCCA TTCAGAAGCC TTAACATAAT TATTTTTCAC	9240
TAAATCTTCT GTTTCAAGAT AATCAAAATA AGGATTATTT TCACGATGAG AGTCGATAGC	9300
AAAGGACATA TAGTAACTGA AACCAATGTA ATCTACAGTC CCACCAAGTA AATCTTCTTT	9360

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ATCCTGGGCA GTAAAATCAA CTGAAATACC TTTTCGTTCC CAATACTTGA AAATATGCTC	9420
AGGATATTTA CCTAAAACAT GCACATCAGC AAAATAATAA CGCTTCTGCA TAGCTTTTCAT	9480
TGCCATTAAG ATATCCTTAG GATTGCAAGT AACTGGATAA ATTGGACACA TCGCAATCAT	9540
ACAACCTATT TGAAAATCTG GATTAATCTC ATGACCAATT TTTACAGCTC GTGCAGAAGC	9600
AACTAATTCG TAATGTGCTG CTTGATACAT AATTGCTTCT CTATTATCAC CTTCCCTCATA	9660
TACAATACCT GAGTTAGTAA ATGGTGCAAA ATCTTCCTGA TAATTCGCTT GATTATTGAT	9720
TTCATTGAAA GTCATCCAAT ATTTAACCTT ATCTTTGTAA CGTTTAAATA CGACTTCTGC	9780
AAAACGAGCA AAGAAATCAA TCAATTTCTT ATTTTCCAA CCACCATATT CGGTCACTAA	9840
GTGATAAGGC ATTTCAAAAT GAGATAGAGT GATGACAGGT TCAATACCAT TCTTTAAGCA	9900
TTCATCAAAA AGATTATCAT AAAACTGTAA TCCTTCTTCA TTCGGCTCTA ACTCATCACC	9960
TTTTGGAAAG ATACGTGTCC ATGCAATAGA GGTACGGAAG CACTTGAATC CCATTTTCAGC	10020
AAAAAGTGCT ATATCTTCTT TATAACGGTG ATAAAAATCT ATCGCCTCAT GATTTGGATA	10080
ATATTTACCC TCTAAAATC CCAAAGTAAT TTCACGAGCT ACTCCATGAC GACCAGCAGT	10140
CATAACATCA GCAACACTAA TTCCTTGCC ACCTTCTTGC CATCCACCTT CAAGTTGATG	10200
AGCAGCAACA GCACCACCCC ATAAAAATCC ATCTTTAAAA GTAGTCATCT TTTTCTCTCC	10260
TGACTTTGAT ACTCTTATTA TAAACCTTAA ACCAAAAGAT GAAAACGCAT TCTTTTCTCT	10320
TATTGTAAAG GAAAGAAGTA ATTTTAAATG GAAATAGAAC AATATCTTCT TGTATTCTCG	10380
TAATGATATC TTTACGATTT TCAATACTTT CAAACTACAA AAACCTCTCAC AATAATTCTA	10440
ATTCCTGTG TCTATAAAG ACTTATCGCT TTCTGGCATC CCAGAATCAT CTTCTATATA	10500
ACGTTCAACT TGCATCTGCA AGTGATATTT TTTTCTTAAA TCTAAGATTT TCTGCATTGT	10560
CTTTGATTGA TAATGTTTAT CTAAAGTTTC TTGATTTATC CACTGATCAA TAAGGAGAAT	10620
AGTTCCCTCT TTTTCAATTG GTAAAAATA TTCGTATTTT AAGTTACCTT TTTGATTCTT	10680
AATTTCTTTA ACAAGGCCAC TATCAAGCAT TTCTCTTGCA AACTTTATTG CACTATCTCC	10740
ATCACCTTTA TAATATACAT GAATAGTCAA TGTATCTTA TATCCTCCAA AATCATCCTT	10800
CAATTTTAAA AAAACAAGTT TAGATGAGGA TCTAACTTG TTTTATGA ACTAATTATC	10860
TAACGTTTCG CCATTACTTT CAATCACTTC TTTATACCAA TAAAATGATT TTTTCTTATA	10920
GCGATTTATA GTCAATTGAA ACAAGAGCAG GACAAAAGAG CCTCATAAAA GGTATTGCAA	10980
CTTGTAATA CCTTTTGTAG GTGCTTTTGT ATATGAGCCC ATGTTTCTC AATAGGATTG	11040
TACTCAGGTG AGTAGGGAGG AAGAGGTAAA AGTTTATACC CAACTCTTC ACACAAGAGT	11100

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TCTAGCTTCC CCATTCTATG GAATCTTGCA TTATCCATAA TAATAACCGA TGGTGTGGTT	11160
AATGTTGGTA AGAGAACTT CTGAAACCAA GCTTCAAAAA AGTCGCTCGT CATCGTCTCT	11220
TCGTAAGTCA TTGGAGCGAT TAACTACCA TTTGTTAGAC CTGCAACCAA AGAAATCCTC	11280
TGATATCTTC TTCCAGATAC TTT	11303

(2) INFORMATION FOR SEQ ID NO: 116:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1112 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 116:

CCTTAGATTT CCACTTGCCA GAGGAATTGA TTGCCCAAAC GCCCCTTGAA AAACGTGATG	60
CCTCCAACT CCTCATCGTC AACCGTGAGA CAGGAGAAAT GCAAGATAAA CATTTCCACT	120
CTATTATTGA TATGCTGGAA CCTGGTGATG CCCTTGTCAT GAACGACACC CGAGTTCTCC	180
CTGCCCCGCT CTATGGTCAA AAAGTGGAGA CAGGAGGTCA TGTGGAACTT CTCCTCCTTA	240
AGAACACTAG TGGAGACGAG TGGGAAGTTC TGGCTAAACC TGCCAAACGC CTCAAGGTCG	300
GTACTCGTAT CAGCTTTGGT GATGGCCGCC TCAGCGCTGT CGTTACAGAA GAATTGACCC	360
ACGGGGGACG CATTGTCCGC TTTGAATACC AAGGAATTTT CCTAGAAGTC TTGGAAAGTC	420
TGGGAGAAAT GCCTCTGCCA CCTTATATCC ACGAAAAATT AGATGACCGT GAACGTTATC	480
AAACCGTCTA CGCCAAGGAA AGTGGCTCTG CTGCAGCACC GACTGCTGGT CTTCACTTCA	540
CCAAAGAACT GCTGGCAGAA ATCCAAGCTA AGGGTGTTCA TCTAGTCTAT CTGACTCTCC	600
ATGTCGGACT CGGAACCTTT AGACCTGTTT TGTGGATAA TCTGGACGAA CACGAAATGC	660
ACTCAGACTT CTATCAACTT TCTGAGGAAG CTGCTGCCAC CCTTCGCTCT GTCAAAAAAA	720
ATGGTGGTCG TGTCATCGCT GTCGGAACCA CTTCTATCCG CACCTTGGAA ACTATTGGTT	780
CCAAGTTTGA TGGGCAAATC CAAGCAGATT CTGGTTGGAC CAATATCTTT ATCAAACCTG	840
GGTATGAGTG GAAGGTCGTG GATGCCTTCT CAACCAACTT CCACCTGCCA AAATCAACTC	900
TGGTCATGTT GGTCTTGCC TTTGCAGGCC GTGAATTAGT CTTAGATGCC TACCACCATT	960
CCATCCAAGA ACACTACCGC TTCTTCAGTT TTGGTGACGC CATGTTTATT TATTGAGAAA	1020
GAATTTCTCT AAATCTTCTA ATACCAATAA ATCGCTAAGA TATTATTTCA AAGAACATCT	1080
ACAATTGAAA CTCTAGCTAG CTGTAGAAGA GGCCTAGTAC ATTGAAATTA AAATGCTTCC	1140
CCCTAGCTTC GAAAATATTG CCATAGATTG CGTTGACTCT CCAAATTGAT TCATCTATAT	1200

839

TTTATTTTCAG CTTCTTATAC TTTCTTCGCT GTTTGTAAAT CAAAATGCAA GACACATGAG	1260
TAGCACCATA TTTGTTACTC TTATCTGTCC TCTCAAGAGA CTATTATGAG TTATTTTCAGA	1320
ATCATTCACT ACTTTGACCC TGACTCTCCT TAGTCTCAAA ATCAAAGACT TATACTCTTC	1380
AAAAATCTCT TCAAACCGCG TCAACGTCAC CTTGGATTAT ATATGTGatC TGactTCGTC	1440
AGTTCTATCT ACAACCTCAA AGCAGTACTT TGAGCAACCT GCGACTAGTT TTCTAGTTTG	1500
CTCTTTGATT TTCATTGAGT ATTAACAAA AAGTGAACAA ATCTGAATTC TAATGTACAG	1560
AAGACTAGGC TTGTTCACTT TTTTATAGTC GCTATAAGAT GACCTTATCT ATAGCTTTTT	1620
ATATATAATT ATATATTCAG ACATACTATT ATCAATTTTG TCGCAGGGAG GAATCTGTTA	1680
ACGCACCCAT TCACCATTAT CATTGACTCT ATAGCCATCT ATACTTGAT TGACCGCTAA	1740
CTCACCCGAT GTATTTACAT AATACCATT ACCACCAACT TGGAAACCATT GATTGACTTT	1800
CATAGAACCG TTGCTGTTGA GGTAGTACCA TGAACATTA ACTTGATCCC AACCTGTTGC	1860
CATGGAACCA TCAGTATTAT AAAAATACCA CATACCATT TCTTGTTTCC AGTCTGTTGT	1920
TGGAGCAACT GCTTTAGCTG GTTCTACTGC TACATCTGTT CCTTGGTTAG ATGTAACAGA	1980
TACAGGATAC GAAGGAATAG ATGATTGCTC AGGAACAACA ACTTTTTCAG GTTCTCTCGT	2040
CCCTCTCCTT ATACGTCTTT TTACCATCTC TTAGTAATT TGACGAGAAG TAGTTTCTTC	2100
AATTGTTCCA TCACGTTTAT CTACAGTATA GATTGTAGTA AGAGTAATTT ACCAATTTCT	2160
CCTACTTCTT CTACTTCTTG ACTTTTATCA AGAGTTGGGC CATCGAGATA TTCTGTTTCG	2220
ATTGGAATTT CTTGGACAAG AACTTGGGGC TTGGTTCTTT TTTTAAACA TCTGTTTGA	2280
GAGTCTTTTT TTTGACTTAA AGTACTCTCA GTTACTTGTC CACTCTTTCC ATCTACATTA	2340
TAAGTTATCG TTGTAACGTG TTTCCCATTC TTTCTAGAG TAATCTCTTG CTCTGTCTCT	2400
GCAGAAAGGT CATTGTCTGC TTCATATTTA GTAGCAAATG GAACAAGAAC TTCTTCAACC	2460
TTGCTTTTAG CTGGAACCTT GATAACTGTA TCCGTGGCTT CTTTCTATC AACAGTAACC	2520
TGTTCCGTAA CATAACCACT CTCTGGATTA ACATCGTAGG TCCTTGTCGT AGTTACATAG	2580
CCATCCTCTC CATCAATTGT AACAGGATTT TCACTACGGT CTTTGTTC ATCTTTTCA	2640
TAACGAATTC GCGTACTTGA AATTTTCTTG GTTACTACCT TAGGTTTAGT CGCTACTTTT	2700
ACAATAATAT CCCCATGTGC AGCGTCATCA TACTCTATTC CCTCTTCTT ATCTCTAGTA	2760
TCATCTCTGA CATATTGAAT CCCATCAGCA GCATGAACAA AACTTGATTT CAGATTCTCTC	2820
CTAAAAATAA AGTTAGCCCC ATTACCGCAG AACCAAAAAT CTTTCCGAGT TTACGTATTG	2880
CATAGCGCTT ATTAGTATTA GATTTTGCCA TTACATCCTA CTCTAGTAT AGCATCTTTT	2940

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CTATCAAACG TTAAACAATA TACGTTATAT ATAAAATAGA CTTAGAATGA TATATTGATT	3000
ATTGAACTAA CACTTTAACT ATATCGTAAT CAATCTCATA TATAAAGGAT TGCAGACATC	3060
TTATCTAAAT ACATGCGAAT ATATTTAGAT ACAAACATTC CAACTTGATA AT	3112

## (2) INFORMATION FOR SEQ ID NO: 117:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 4327 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 117:

CCCCAAAATC TCTTCAAACC ACGTCAGCTT CGCCTTGCCG TAGTATGGTT ACTGACTTCC	60
TCAGTTCTAT CCACAACCTC AAAACAGTGT TTTGAGCATC ATGCgGCTAG CTTCTTAGTT	120
TGCTCTTTGA TTTTCATTGA GTATAAAAAC AGATGAGTTT CTGTTTTCTT TTTATGGACT	180
ATAAATGTTT AGCTGAAACT ACTTTCAAGG ACATTATTAT ATAAAAGAAT TTTTGAAGC	240
TAAATCTAC TATATTACAC TATATTGAAA GCGTTTTAAA AATGAGGTAT AATAAATTTA	300
CTAACGCTTA TAAAAAGTGA TAGAATCTAT TTTTATGTAT ATTTAAAGAT AGATTGCTGT	360
AAAAATAGTA GTAGCTATGC GAAATAACAG ATAGAGAGAA GGGATTGAAG CTTAGAAAAG	420
GGGAATAATA TGATATTTAA GGCATTCAAG ACAAAAAAGC AGAGAAAAAG ACAAGTTGAA	480
CTACTTTTGA CAGTTTTTTT CGACAGTTTT CTGATTGATT TATTTCTTCA CTTATTTGGG	540
ATTGTCCCTT TTAAGCTGGA TAAGATTCTG ATTGTGAGCT TGATTATATT TCCCATTATT	600
TCTACAAGTA TTTATGCTTA TGAAAAGCTA TTTGAAAAG TGTTGATAA GGATTGAGCA	660
GGAAGTATGG TGTAAATAGC ATAGGCTGAT GTCCATCATT TGCTTATAAA GAGATATTTT	720
AGTTTAATTG CAGCGGTGTC CTGGTAGATA AACTAGATTG GCAGGAGTCT GATTGGAGAA	780
AGGAGAGGGG AAAATTGGCA CCAATTGAG ATAGTTTGTT TAGTTCATTT TTGTCATTTA	840
AATGAACTGT AGTAAAAGAA AGTTAATAAA AGACAACTA AGTGCATTTT CTGGAGTAAA	900
TGTCTTATTT CAGAAATCGG GATATAGATA TAGAGAGGAT CAGTATGAAT CGGAGTGTTT	960
AAGAACGTAA GTGTCGTTAT AGCATTAGGA AACTATCGGT AGGAGCGGTT TCTATGATTG	1020
TAGGAGCAGT GGTATTTGGA ACGTCTCCTG TTTTAGCTCA AGAAGGGGCA AGTGAGCAAC	1080
CTCTGGCAAA TGAAACTCAA CTTTCGGGGG AGAGCTCAAC CCTAACTGAT ACAGAAAAGA	1140
GCCAGCCTTC TTCAGAGACT GAACTTTCTG GCAATAAGCA AGAACAAGAA AGGAAAGATA	1200
AGCAAGAAGA AAAAATTCCA AGAGATTACT ATGCACGAGA TTTGGAAAAT GTCGAAACAG	1260



841

TGATAGAAAA AGAAGATGTT GAAACCAATG CTTCAAATGG TCAGAGAGTT GATTTATCAA	1320
GTGAACTAGA TAAACTAAAG AAACCTGAAA ACGCAACAGT TCACATGGAG TTAAAGCCAG	1380
ATGCCAAGGC CCCAGCATTC TATAATCTCT TTTCTGTGTC AAGTGCTACT AAAAAAGATG	1440
AGTACTTCAC TATGGCAGTT TACAATAATA CTGCTACTCT AGAGGGGCGT GGTTCGGATG	1500
GGAAACAGTT TTACAATAAT TACAACGATG CACCCTTAAA AGTTAAACCA GGTCAGTGGA	1560
ATTCTGTGAC TTTACAGTT GAAAAACCGA CAGCAGAACT ACCTAAAGGC CGAGTGGGCC	1620
TCTACGTAAA CGGGGTATTA TCTCGAACA GTCTGAGATC TGGCAATTTC ATTAAAGATA	1680
TGCCAGATGT AACGCATGTG CAAATCGGAG CAACCAAGCG TGCCAACAAT ACGGTTTGGG	1740
GGTCAAATCT ACAGATTCCG AATCTCACTG TGTATAATCG TGCTTTAACA CCAGAAGAGG	1800
TACAAAAACG TAGTCAACTT TTTAAACGCT CAGATTTAGA AAAAAACTA CCTGAAGGAG	1860
CGGCTTTAAC AGAGAAAACG GACATATTCG AAAGCGGGCG TAACGGTAAC CCAAATAAAG	1920
ATGGAATCAA GAGTTATCGT ATTCCAGCAC TTCTCAAGAC AGATAAAGGA ACTTTGATCG	1980
CAGGTGCAGA TGAACGCCGT CTCCATTGCA GTGACTGGGG TGATATCGGT ATGGTCATCA	2040
GACGTAGTGA AGATAATGGT AAAACTTGGG GTGACCGAGT AACCATTACC AACTTACGTG	2100
ACAATCCAAA AGCTTCTGAC CCATCGATCG GTTCACCAGT GAATATCGAT ATGGTGTGG	2160
TTCAAGATCC TGAAACCAA CGAATCTTTT CTATCTATGA CATGTTCCCA GAAGGGAAGG	2220
GAATCTTTGG AATGTCTTCA CAAAAAGAAG AAGCTACAA AAAAATCGAT GAAAAACCT	2280
ATCAAATCCT CTACCGTGAA GGAGAAAAGG GAGCTTATAC CATTCGAGAA AATGGTACTG	2340
TCTATACACC AGATGGTAAG GCGACAGACT ATCGCGTTGT TGTAGATCCT GTTAAACCAG	2400
CCTATAGCGA CAAGGGTGAT CTATACAAGG GTGACCAATT ACTAGGAAAT ATCTACTTCA	2460
CAACAAACAA AACTTCTCCA TTTAGAATTG CCAAGGATAG CTATCTATGG ATGTCCTACA	2520
GTGATGACGA CGGGAAGACA TGGTCAGCTC CTCAAGATAT TACTCCGATG GTCAAAGCCG	2580
ATTGGATGAA ATTCTTGGGT GTAGGTCCTG GAACAGGAAT TGTACTTCGG AATGGGCCTC	2640
ACAAGGGACG GATTTTGATA CCGGTTTATA CGACTAATAA TGTATCTCAC TTAGATGGCT	2700
CGCAATCTTC TCGTGTCATC TATTAGATG ATCATGGAAA AACTTGGCAT GCTGGAGAAG	2760
CGGTCAACGA TAACCGTCAG GTAGACGGTC AAAAGATCCA CTCTTCTACG ATGAACAATA	2820
GACGTGCGCA AAATACAGAA TCAACGGTGG TACAACATAA CAATGGAGAT GTTAAACTCT	2880
TTATGCGTGG TTTGACTGGA GATCTTCAGG TTGCTACAAG TAAAGACGGA GGAGTGACTT	2940
GGGAGAAGGA TATCAAACGT TATCCACAGG TAAAGATGT CTATGTTCAA ATGTCTGCTA	3000

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TCCATACGAT GCACGAAGGA AAAGAATACA TCATCCTCAG TAATGCAGGT GGACCGAAAC	3060
GTGAAAATGG GATGGTCCAC TTGGCACGTG TCGAAGAAA TGGTGAGTTG ACTTGGCTCA	3120
AACACAATCC AATTCAAAAA GGAGAGTTTG CCTATAATTC GCTCCAAGAA TTAGGAAATG	3180
GGGAGTATGG CATCTGTAT GAACATACTG AAAAAGGACA AAATGCCTAT ACCCTATCAT	3240
TTAGAAAATT TAATTGGGAA TTTTGTAGCA AAAATCTGAT TTCTCCTACC GAAGCGAACT	3300
AGAGAGATGG GCAAAGGAGA GATGGGCAAA GGAGTTATTG GCTTGGAGTT CGACTCAGAA	3360
GTATTGGTCA ACAAGGCTCC AACCCTTCAA TTGGCAAATG GTAAACAGC GACTTTCCTA	3420
ACCCAGTATG ATAGCAAGAC CTTGTGTTT GCAGTAGATA AGGAAGATAT CGGACAGGAA	3480
ATTATTGGTA TAGCTAAAGG AAGCATCGAA AGTATGCATA ATCTTCCTGT AAATCTAGCA	3540
GGTGCCAGAG TTCCTGGCGG AGTAAATGGT AGCAAAGCAG CGGTGCATGA AGTTCCAGAA	3600
TTTACAGGGG GAGTTAATGG TACAGAGCCA GCTGTTTCATG AAATCGCAGA GTATAAGGGA	3660
TCTGATTGCG TTGTAACCTT TACTACAAAA AAAGATTATA CTTACAAAGC TCCTCTTGCT	3720
CAGCAGGCAC TTCCTGAAAC AGGAAACAAG GAGAGTGACC TCCTAGCTTC ACTAGGACTA	3780
ACAGCTTTCT TCCTTGGTCT GTTTACGCTA GGGAAAAAGA GAGAACAATA AGAGAAGAAT	3840
TCTAAACATT TGATTTTGTA AAAATGGCTC TTTGTCAACT GTAGTGGGT GAAGTCAGCT	3900
AAGCTCGAGA AAGGACAAAT TTTGTCCTTT CTTTTTTGAT ATTCAGAGCG ATAAAAATCC	3960
GTTTTTTGAA GTTTTCAAAG TTCCGAAAAC CAAAGGCATT GCGCTTGATA AGTTTGATGA	4020
GATTATTGGT CGCTTCCAAT TTGGCGTTAG AATAGTGTAG TTGAAGGGCG TTGACGATTT	4080
TCTCTTTGTC CTTTAGAAAG GTTTTAAAGA CAGTCTGAAA AAGAGGATGA ACCTGCTTTA	4140
GATTGTCTC AATGAGTCCG AAAAATTTCT CCGGTTCTT ATTCTGAAAG TGAAACAGCA	4200
AGAGTTGATA GAGCTGATAG TGATGTTTCA AGTCTGTGA ATAGCTCAAA AGCTTGTTTA	4260
AAATCTCTTT ATTGGTTAAA TGCATACGAA AAGTAGGGCG ATAAAAATGT TTATCGCTGA	4320
GTTTACC	4327

(2) INFORMATION FOR SEQ ID NO: 118:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 3521 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 118:

CTCTGGCCCT GCCACTCCAA CGTTTTGTCA GGGTGCTTTT TTCATAAAGG AGTTCTTATG	60
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843

TTAGATATCA AACGTATTCTG TACAGATTTT GAAGCTGTCTG CAGAAAAAATT AGCTACACGT	120
GGTGTAGATG CTGCTGTCTT GAATGAAATG AAAGAAATCG ATGCTAAACG TCGTAACATC	180
TTGGTCAAGG TTGAAACTCT CAAAGCAGAA CGTAACACAG TTTCTGCTGA GATTGCCCAA	240
GCTAAGCGCA ACAAGGAAAA TACAGATGAC AAGATTGCTG CCATGCAAAA TCTATCTGCT	300
GAGGTAAAG CCTTGGATGC TGAATTGGCA GAAATCGATG CTAAATTGAC AGAATTTACA	360
ACGACTCTTC CAAATATCCC AGCTGACAGC GTTCCTGTTG GGGCTGACGA AGACGACAAT	420
GTGGAAGTTC GCCGTTGGGG TACTCCACGC GAGTTTGAAT TCGAACCTAA AGCTCACTGG	480
GATCTCGGTG AAGACCTTGG TATCCTTGAC TGGGAACGCG GTGGTAAGGT AACAGGCGCT	540
CGCTTCCTCT TCTATAAAGG CCTCGGTGCT CGTTTGAAC GTGCTATCTA CAACTTTATG	600
TTGGATGAAC ATGGAAGAAG AGGCTATACT GAAGTCATCA CACCTTACAT AGTCAACCAT	660
GATTCTATGT TTGGTACTGG TCAGTATCCA AAATTTAAGG AAGATACTTT TGAATCAGC	720
GATACCAACT TTGTCTTGAT TCCAACCTGCT GAAGTTCCTC TGACAACTA CTACCGTGAT	780
GAAATCTTAG ACGGCAAAGA TCTTCCAATC TACTTCACTG CCATGAGTCC GTCATTCCGT	840
TCTGAGGCTG GTTCTGCCGG TCGTGATACG CGTGGCTTGA TCCGTTTGCA CCAATTCCAC	900
AAGGTTGAAA TGGTCAAATT TGCCAAACCA GAAGAATCTT ACGAAGAATT GGAAAAAATG	960
ACAGCCAACG CTGAAAACAT TCTTCAAAAA CTCAACCTTC CATACCGTGT CGTTGCTCTC	1020
TCTACTGGAG ATATGGGCTT CTCAGCTGCG AAGACTTACG ACTTGGAAGT GTGGATTCCA	1080
GCACAAAACA ATTACCGTGA AATCTCAAGC TGTTCAAACA CAGAAGATTT CCAAGCCCGT	1140
CGTGCCCAAA TCCGTTACCG TGATGAAGCA GATGCCAAGG TGAAACTCCT TCATACCTTG	1200
AACGGTTCTG GACTTGCAGT TGGACGTACA GTGGCTGCAA TTCTTGAAAA TTACCAAAT	1260
GAAGATGGTT CTGTGACCAT CCCAGAAGCA CTTCGTCCAT ACATGGGTGG AGCTGAAGTC	1320
ATCAAACCAT AAAAAATAAG GTTTAGCTAT TTCTAGCTAG ACCTTTTTTC GTAACCAAAT	1380
CAGATAAGCA CCTAGTACAA AGAATAAAAT AGTTAGGCAT ATAATGGTTT CAGCCAATAC	1440
CAGGTAATCC AGAAATGGAA GTTTCAAAAT TCCTGAGCC ATCTTGAGCG AGGTCGCTGT	1500
GATAATGGTT GGAAGGTGA GGGCTGAGAA GGCTGGTTGA AAACCTTGTT TTAATATGTT	1560
GGGCAGACGA GTTAAACAA AGAAAAAGAA GGATTGAGAA GCCAAATCA TGACAATCAA	1620
GACCCAAGTC GGCAGGCTGG TTCCTCCTAC TCGAACTAGA GAAGCCAAGA GTAGAGAGAA	1680
AGGAGCACAG TAGATTCTTT CTGTCCAAG CAAGGCTAGT GGGAGTGGAT GTTCTTTTAA	1740
ATCGCTATAA ATAAGGGGAT AGAGATAGAA GGTCAAGAGA AAACCAAAAC TCAAGGTCGC	1800

844

ATAGGCAATT TCGATAATAC CTACCAGAGG ATAGGTCAAG GCAGCCACTG CTATCCCCAC	1860
ATAGAGAACC GTCCAGCTTG GAGTGGCATG AACCTCCGC CCTGGACAAG CAACTTGAT	1920
GGTAAACCA GCAATCAAGG TCAAATCCAA GAGAAATGAA AACCACCAA TCCCTTGTGC	1980
TACCAAAGGA AGATAAGAGA ATACGCGAAA GACATAGGTC GATAAAATCA TCCAGCCAT	2040
AGGAAAGGTT GCCATTCTG ACAAAGAGG GGGCTTGGTC AATTCTTGCT TGGTTTCTTT	2100
CCAATTAAAG AGATGCAGAA TTAGAAAGTA AATCCATAAA ACCAAACCAA TCAGACTAAA	2160
AAGATGGGAT AGAACCGGCA ACGTATCTAA AATAAGATTT CCAGCTCCTG CCAAACCTAG	2220
CAAACAACCT GAAAATACTA AGGGGAGTTT TTTTCATCCTA ACCTCCAATA ATCATGTTAG	2280
TTTCAGTATA ACATAAAAGC GCTTAAATGA GGATTTAAAA AAACGAGTCC GCTTATTTCA	2340
GACTTCATTT TACTCAGATA TGAATTAGGC ATAAGGTTGC AATTCTGGAT TAATTGGTGT	2400
ATTAGCTAAG TTGTTGGCAT ACTTACAGAG GATTGCTAGG CTGACACCAA AAACCACATC	2460
CAAGGCATTT TGTGAGTGT AGCCAGCTTC TAAAAACTCA GACAAGGCTT CATCTCCTAC	2520
ACGACCCTTG GTATTGATAA CTGCCAAGGT AAAGTTAGCT AGGGTATCCA ATTTAGGATC	2580
TGTTTCAATT GGAGTACGAT TCGGAAGAGC TTGAATCAAG TCATCATTCA TCTGGATTG	2640
TTTGATGGAA AAGGCTGTGT GACCTGCGAC ACAGAAGGCA CAACCATTGG TCACGGCTGC	2700
CGTGATTGTC ACCACTTCAC GCTCAACGGG TGTCAGGCTG TTGCGACGGT GGATAGATGA	2760
GACAATTTGG TAGGCTTCTA AAACAGTCGG GGCATTGGCC AAGAGACCGA TTAGGTTGGC	2820
AATATAGCCA TTGTTGTCTT TTTCTACTGT TTCAAGAATT TCTTTCACTT CTGCTGGTGC	2880
TGACTCTACT GTATGGATAG TAAATGTTGT CATAAGATAC CTCTTTTCTT ATTATTGACA	2940
CTAATATTAT TGGAAAATCT TATAAAATCC TGATTCTTAA GTTATCTAA GATAAAGCTT	3000
TATTCTCTCA TAAGATTTTC GTTGTATAT TAGTTTATCA CACTTCCAAT CACTTGTATA	3060
ATATATATTA TATATCAGGC TGATAAAAAT TATTTATAGG CAAAAAATC ACACGAGCTG	3120
TGTGATTCCA TTATTTGTCA AAATACTTTT TAGTTTCAGC AATAACGACT GCGGACAAGA	3180
CCAAGAGGGC AATCAAGTTT GGCAGAGCCA TCAAGGCGTT AACGATATCT GCGATAATCC	3240
AGACCATATC CAACTCGATA AATCCTCCTA ACAAGACCAT GAGCACAAAA ACCACACGGT	3300
AGAGCCAGAT AAAGCGAACC CCAAAGAGGA ACTCAAAACA GCGTTCTCCG TAATAGTTCC	3360
AACCTAGAAT CGTTGTAAAG GCAAAAAGTA CAAGGAAGAT GGTCAAGAGA GCAGGCCCAA	3420
ACTGTGAAAA GTTTGTTGAG AAAGCTGACT GAGTCAAGGC AACCCCATTC AAGTCACCGC	3480
TCCAACTCC AGTTACCAAG ATGGTCAAAC CAGTTAGAGT A	3521

(2) INFORMATION FOR SEQ ID NO: 119:

845

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 1968 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 119:

AACCTGGGCA AGCAAGCTAA AAGCAATGGG ACCTGGAATC CTAATGGCAA CTGCCGCTGT	60
TGGAGGTTCC CACATTGTAT CCTCAACTCA AGCTGGCGGT TCTTACGGTT GGTCTCTACT	120
TCTCTTGGTC ATCTTAGCCA ATGTCTTTAA ATATCCATTT TTCCGTTTGT GTGCTGAATA	180
CACAGCTGAT ACTGGAAAGA CTTTGGTTGA AGGTTATGCC GAAAAAGGAA AACTCTATCT	240
CTGGATTTTC TTTATCCTCA ATGTCTTTTC GGCTATGGTC AACACGGCTG GTGTTGCCAT	300
TCTGTGCTCA GCTATCATCG CCAGTGCCCTT CCCAATGATT GGACTTAGCA TTA CT CAGTG	360
GTCCCTCATT CTCGTTGCAA TCATTTGGGC TATGCTACTC TTTGGAGGCT ACAAAC TTTT	420
AGACGGCATG GTCAAATGGA TTATGTCTGC CTTAACCATT GCGACTGTTT TG CAGTTAT	480
CATTGCGGCG GTCAAGCATC CAGAATACAG TTCTGATTTT GTCGAGAAGA CACCTTGCCA	540
AATGGCAGCT CTGCCCTTCA TCGTCTCCCT CCTAGGATGG ATGCCGGCTC CTATTGAAAT	600
TT CAGCCATC AATTCAC TTT GGTCAGCTGA AAAGAGAAAG ACCGTCAACT TTAACACAGA	660
AGACGCTCTG TTTGACTTTA AACTGCTGTA TATTGGAACA GCTATCCTAG CCGTCTTCTT	720
TGTGGCACTG GGAGCACTGA TTCAGTATCC TACAGGGCAG GCGGTTGAAG CTGCTTCAGC	780
CAAATACATC TCTCAATTCG TGGGCATGTA TGCTCTGTT CTTGGCGAAT GGTCCCGTTA	840
CTTGATTACC TTTATTGCCT TCCTCTGTAT CTTTGAACA GTTATAACTG TTATCGATGG	900
CTATTCTCGC GTTAATCAGG AATCTCTCCG ACTGCTAATC AGTCAAAAAG AGGACAATCG	960
TAAATCTTTG AACATCTGGA TGACCATCAC TGCTATCATC GGTATCGTCA TTATCAAGTT	1020
CTTCGCTGGT CAGGTTTCAA CCATGCTCCG CTTTGCCATG ATTGGCTCTT TCCTGACAAC	1080
ACCTTTCTTT GCTCTTTTGA ATTACGCCTT GGTAACGCGT GAAAACAAA ATCTTCCTTC	1140
TTGGCTCAAA CACCTTGCCA TTGCGGGATT GATTTTCCTC TTTGCTTCGC CATCTTCTTT	1200
ATCTACGCAC TCGCAATCGG AAAAGCAGGG TAAGGGACAA GCGCGAGATG AAGATAAGGT	1260
TT CATTTCAA GAGAAAATTC AGCAAATATT TCTATGATAA AAAGCATAAG AACAAGGTTT	1320
TGAAGACCTG AACTTATGCT TTTTACGTT CTAAAGACT GTTTATACTC AAAAAACAGT	1380
TGAACAACTT CAACCACCTC TTATAAGAAC TTTATACTAT TCGAGAATCT CTCAAACCA	1440

846

CGTCAGCTCT ATCTGCAACC TCAAAGCTGT GCTTTGAGCA ACCTGCGACT AGCTTCCTAG	1500
TTTGCTCTTT GATTTTCATT GAGTATTAAT TCTCCTTTC CAACTCATAC AAATCTGCGA	1560
TAATAGCTGC GACATGTTTG ATATCTTCCA GCATGCCTCG CATTTCAAAG TCAGCCAATA	1620
CAGGGAAGCC AAAGCGTTGA CTGTATTGCT TGGCTGTTAG GCAGTATTGG TTATTAAAGT	1680
TACGATTTCC TGACCCAACC ACACCAAAAC ACTTACTAGC ATTGTTACCA TAGGCAATAA	1740
AATCTCCCAC CGGTGTCGTC AAAATCTCAA CATCTCCGTT ATCCACGCCA TTCCCACCTT	1800
CGAGATAGGT CGGCAAAAAA GCGACATAGG GATGGTCCAT TTCATAGAAA TTTTTCCTT	1860
CCTTGACCAA ATCCTTGATA TGAATCTTTT GAACCTCAAT CCCTTTGTAC TGGGACAAGA	1920
GATAGTCTTT CAAGCGCGTC ACAAACCTTT CAGTGTGCCC ACTCAAGG	1968

(2) INFORMATION FOR SEQ ID NO: 120:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 7172 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 120:

CCGCATTTTT TATCACTAGA CTCGAGACAT CTTTGTAGTG GCTCTTGCTC TCTGGTTTAA	60
TTTTCTTCCT TGCTCAAGGA CTCCTGCTAT TTCTCTGGT CGTCCGACTC AAACATCAAT	120
TGCTGAGAT TTATCTCAA ATCAATAAAA AGATTCGCTT CTAATATTTA GGGGTTCTCA	180
CCATTGATTT TCTATTTTTT GTTCTCTTAG CTTTCATTAG TTCTCAGCGT TTTTCATCTC	240
TTATGCCAAT CATCACTGCT TGCCATTCTA CTTTTATTA TATGACAGCT GACTACCTAA	300
GAGAAACTA TCCAGACTTT TACGACAAAC ACATCTCTTT ATGGGAGTGT CTCTAAAGAA	360
AAGGAGGTTT TAGCATGAAA AAAATCATCT TCATCAAAAC CATTCAACTC CTTGTCAATG	420
ATGGAATCAT GCTGGCATT TTTGACATTA AAAGGGGGCT TACTTGGGAC TGGATTTTGA	480
TTTATAGCGG TTGGCTCATT TTCTTTTCATC CTGTGCTATT GACCTATCTT TCAAACCAAC	540
TTTGTGACCA CTTTAGTTAA CTCTATTCCC AGATTAGACC GAGATTCTGG CGTTTTGCTT	600
TACAAATTCT CCTATGGGAT AGCCTGATGA TTCTCTCCTT GGTGTCTTTA AGTGATATTC	660
CACTTTTCTT TCAGGGAAC CTCCTCATCC TAGGACATCT CATCCCTTCC TATCGCATCT	720
GCCAAAGCCT GAAAAGAGAC TTCCCCCAAG CATATCAAGA ACCGATTTCT TTTTGGAGTA	780
TTTTATGATA GATGAGAAAG ACCAAGCCGA CTGGGCTTGG TCTTTCTTAT CTCTTTTATG	840
TATCTAGGAT AATGGTAACA GGTCCATTAT TAACCAGCTC AACCTGCATA TCTGCTCCAA	900

847

AGATGCCTGT CTGAACGGGC ACTTCTTGCG CTAATTTTGT ATTGAAAGCA TCATAGAAGT	960
CTGATGCCAT ATCAGGTTTA GCTGCCCCTG TAAAGGCTGG ACGATTGCCT CTCTTAGTAT	1020
CCGCAAAGAG GGTAAACTGA GAAATAGAGA GGATTTCTCC TTCAATATCT TTGACAGACA	1080
GTTTCATCTT GCCTTCTGCG TCTGAAAAAA TCCGCATATT GACCAGTTT CTCACAGCAT	1140
AGTCCAAATC TTCTCTTGG TCCTCTGGTC CAACACCAAC CAGCAATAAA AGTCCCTGAT	1200
TGATTTTTCCTGCTGAATCTGG CCTTCTATAC TCACTTGGGC TTTTTTAACC CGTTGGATAA	1260
TGATTTTCAT AATAGCCTTT CTAGTAAGAG CTAGGACAAC TAGCCGTTGG TCCGTTTGAC	1320
AGAGTAAACT TCTGGCACAC TCTTAATTTT ATCGACAACC GTGGTCAGTG TAGAGAGGTT	1380
GGCAATACCG AAGGACACAT GGATATTAGC AAACCTCATA TCCTTGGTTG GTTGGGCATT	1440
GACCGTTGAA ATATTCTTGG TTGTATTTGA AAGAAGTTGC AGTACATCGT TCAACAGTCC	1500
TGTACGGTTG AGACCGTAGA TATCGATATG GGCCATATAC TCCTTATTTG AGCTAGGGTA	1560
CTGGTCTTCC CATTCCACAT CAAGGAGACG TTGCTCGTAG TTTTCTTGGG CACGCAGGTT	1620
CATACAGTCC ACACGGTGAA TAGCCACACC ACGACCCTTG GTAATGTAGC CAACAATATC	1680
GTCACCAGGC ACGGGGTTAC AACACTTAGC AATCCGCACT AGGAGACCAG AAGCACCTTC	1740
AATAACCACT CCCCCCTCAT GCTTGACCTT GAGGGTTTCT TTATTTTCAA CCTTGACCTC	1800
GCCACCTTTG ACAAGCTCCT CTGCCTCAGC TTTGGCCTTG GCACGCTCTT CCTCACGGCG	1860
TTCTTTTCA GTCAGACGGT TAAAGACGGT AATCGCACCG ATTTCCCCAA AACCAATGGC	1920
CGCAAAGAGG GAGTCTTCTG TCTTGTAAGT GGTCTTTTGC AGAACTTGAT CCATGTGGCG	1980
CTTGTCATA AATTTATTTG CCACATAGCC ATTTTCTTGG AACTGAGCCA TCAGCATCTC	2040
ACGACCCTTG TTGACAGACA ATTCCTTATC TTGGTTTTTA AAGAAGTGGC GAATCTTATT	2100
GCGCGCCTTG CTAGTCTTGA CCATATTGAG CCAGTCACGG CTAGGTCCAA AGGAGTTCGG	2160
GTTGGCGATA ATTTCAACCT GATCCCCTGT CTTTAACTTG GTTGTCAAGT GAACCATGCG	2220
GCCATTGACC TTGGCACCAG TTGCTTTTTC ACCGACCTTG GTATGGATT CTAGGCAAAA	2280
ATCAATCGGT CCTGAATCTT TGGGAAGGGA ACGGACAGCT CCATCTGGGG TAAAAACGTA	2340
AATCTCCTCA GCCAAATAGT TTTCTTAAAC AGAGTCCACA AATTCCTTAG CATCATCAGC	2400
CTGGTCTTGG AGCTCCATCA TCTCCTTGAT CCAGTTTCAAT CCAATAGCTG ATTCCTTGCT	2460
GTAACTTGC CCTTTTATAC CTTTCTTATA AGCCCAGTGA GCCGCAACCC CGTACTCAGC	2520
CACCTCGTGC ATTTCTTGG TTGCAATCTG GAATTCATC GGCCCTTTTG GTCCATAAAC	2580
AGTCGTATGG ATAGACTGAT AACCATTGGC CTGCGGTTG GCGATATAGT CTTTGAAGCG	2640

848

ACCTGGCATC GGTTCCTAAA ATTCATGCAC GTAACCAAGC ATGGCATAAA CATCACTTTG	2700
GGTATCTAAA ATACAACGAA TAGCAATCAG ATCATAGATT TCCTCAAACC GTTTTCTCTT	2760
GTCCTGCATT TTGCGGAAAA TTGAGTAAAT ATGCTTGGGA CGACCATAAA TCTTCCCTTT	2820
CAAGTGACGT TCTGTCGTAT ACTCCTCTAA TTTGTGACT ACCTCATCCA CCAAGGCCTC	2880
ACGCTCCCTG CGCTTTTCCT TCATCATATG GGTAACTCTG TAAAACTCCG TTGGATTGAG	2940
ATAACGGAAA GACAAGTCTT CTAATTCCTA TTTGACACTG GAAATCCCCA AACGATGGGC	3000
AAGCGGGGCA TAGATTTCCA TGGTTTCTTT GGAAATACGC TCCTGCTTGT CTTTTCGAAG	3060
ATGTTTCAGG GTCCGCATAT TGTGCAAGCG GTCAGACAGT TTGACCAAAA TAACGCGGAT	3120
GTCCTCAGAC ATGGCCATGA GCATCTTGCG ATGATTTTCC GCTAATTGCT CCTCGATCGA	3180
TTTGTAATCG ACCTTGCCAA GCTTGGTAAC TCCGTCAACA ATCATCCGCA CATCAGGACC	3240
AAACTCTCTT TCCAAATCGT CCAAAGTCGC ATCTGTATCT TCCACCACAT CATGCAAGAA	3300
TCCACAAGCT ACTGTTACAG CATCCAGCTT TAGCTTAGCT AAAATACCTG CCACTTGGAT	3360
AGGGTGAATG ATATAAGGCT CGCCTGATTT GCGATATTGA CCACTGTGGC ATTCAACAGC	3420
ATAGACCAAG GCCTTATGGA CAAAATGAAC ATCCTCTTCC GTTAAATATT CTTTGGTTAA	3480
AGCGACAAC TCTTCGCCCTG TTAATTCAC TTCTTTGCGC ATCTCTACTC TCCAATTCTT	3540
CCTACCATT TATCACTTTT TTAAGAATAT GAAAAC TAGA TTGGAACAGA ATAAGAAAAA	3600
AATAATTCAA AATTGCTTGA TAATTCTGAA TTATTGGTCC GTAATATACT ACGAAGTTAG	3660
ATTTTAAACT TAGGTGATAG AAGGAGAGAT AGAAGAACGG AAACCATATT GTAACCCAAA	3720
GACTTTCTGA CTTCCTCAAT TCCATTGAAG ATACGAAAGA TAAACGGTGG AACTCGTATC	3780
ACATACACTG GTACCTTGAC TGGATTTTGG AATTAATACT AAATGAAAAT CAAAGAGCAA	3840
ACTAGGAAAC TAGCCGCAGG TTAATCAAAG CACCGCTTTG AGGTTGCAGA TAAAGTTGAC	3900
GCGGTTTGAA GAGATTTTGG AAGAGTATAA AAATCCTCAA GATACTTTCT TCTATCCTTT	3960
AGTTTATAAG GAGAATACCT ATGAAAAAAA CTGCTATTTT TATCTTTGCT CTCCTAATGT	4020
TAGGAGTTTG CTGCCTGTTT CTATTCAGCC AGCAAAGCTA TAAAAACAG TCGTTCAATA	4080
CTATGCTAAC GACCAGAACC TGCCCACTAG GATACTTAT AGTGAATATA GCGACAAATG	4140
AGAAGCCAAC TACGGTAGCA CTCTAAACAT CACGTCTATC AAACAAGCTA ATGACGGAGT	4200
TTATGCAACC TATGAAGGGC AATTGACACC TTTCCAATAT TGATAAATTG ATAACCAGCC	4260
TGCTTTCATC TAGTCATGCT GGTTTTTTAA TTCAATTTAA ATCCTTACCT ATTCTCCCTA	4320
ACTGTGCTAT ACTTAATTTA TACTCAATGA AAATCAAAGA GCAAAC TAGA AAGCTAGCCG	4380
CAGGCTGTTC AAAGCACTGC TTTGAGGTTG CAGATAAAGT TGACGCGGTT TGAAGAGATT	4440



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TTCGAAGAGT ATTAGTACAT TCTTTGAGAT TGGAGCTAGT ATGAAAATCC ATAAAACCGT	4500
GAATCCTGTT GCCTATGAAA ATACCTATTA TCTAGAAGGC GAAAAGCACC TCATCGTCGT	4560
CGATCCTGGT AGTCATTGGG AAGCCATTCG TCAGACAATC GAGAAGATCA ACAAACCGAT	4620
CTGTGCTATT CTCTTGACCC ACGCCCATTA TGACCATATC ATGAGTCTGG ACTTGGTTCG	4680
CGAGACGTTT GGCAATCCTC CTGTCTATAT CGCAGAGAGC GAAGCCAGCT GGCTCTACAC	4740
TCCTGTGCGAT AATCTCTCCG GTCTCCCTCG CCACGATGAT ATGGCAGATG TGGTCACAAA	4800
ACCTGCAGAA CACACCTTTG TCTTTCACGA AGAATACCAA CTAGAGGAAT TTCGTTTAA	4860
GGTTCTACCG ACCCCAGGGC ACTCTATCGG TGGTGTTCCT CTAGTCTTTC CTGATGCTCA	4920
TCTAGTCTTG ACGGGAGATG CTCTATTCCG CGAAACTATC GGACGGACCG ACCTTCCGAC	4980
TGGTAGCATG GAGCAACTCC TTCATAGTAT CCAGACCCAA CTCTTCACCC TACCAAACTA	5040
CGATGTCTAT CCAGGACATG GTCCAGCTAC TACTATCGCT CACGAAAAGG CCTTCAATCC	5100
CTTTTCTAG CAAGATGATG ACAATCGAAA TTTAAGTAAA CTATCCAGCA AATCTTTCTA	5160
TTACAAAAGG CATCCTATCA AGGTTTTTAC ACATGATTGG ATGCCTTTTT TCTGATGACT	5220
AGATTTTTTG CATTACCAA TAATCACGCG CTCCTCTGGT GAACGCCACA TTCCGTCTCC	5280
TTCTTTGACA TCATAGGTTG TAAAGAAATC GTCGAAGTTT GGTACTTGCA CATTGACACG	5340
GAGTTTGGCT GGTGCGTGCA CATCGACGCT AGCCAAAAGT TTCATAAATT CTGGTCGACC	5400
TTTCATGCGC CAGATGCGAC CGAAGTTGTA GAAGAACTCT TCTGCTGAGA AGTCTGCTTC	5460
TCTCTTAGCT GCTTCAAGCG CTGCTGCGAT TCCTCCCAAG TCAGCCACGT TTTCTGATAC	5520
AGTCAATTTA CCGTTAATGG TTGCTCCATA AGAATCCTGT CCATCAAATT GGTCAATGAC	5580
TTTTTGTTT TTCTCCTTGA AGGCAGCATA GTCGCTCTCT GTCCACCAAT CCTTGAGGCT	5640
ACCATTTTCG TCAAAGGAAG CCCCCTTAGT ATCAAAGGCG TGGGAAATTT CATGGGCAAT	5700
CACTGCCCCA ATACCACCGT AGTTAGCAGA AGATGACTGA TGCAAGTCAT AGAAAGGCGC	5760
CTGTAAAATG GCCGCTGGAA AGACAATCAG GTTCTTCTGA GGATTGTAGT AGGCATTGAC	5820
CATATGAGCA GGCATGCCCC ATTCCTTATA ATCTACAGGC TGGTTCCACT TACTCCAACT	5880
GTGCTTGATT TCCACACGCG CAAAGGCTAG AGCATCTCTA AAAAGACTGG CAGTTTCATT	5940
CACTACCTTA TCCTTGTAAC GTGCAGGCAA TTCTTCTGGA TAGCCAATAT AAGGTTTGAT	6000
CACATTGAGC TTCACGATAG CCTGTTTACA GGTTTCTGGA GTGAGCCAGT CATTCTTAAG	6060
CAGACGCTCC TTATAAACAT CAATCATGGT TGCCACTTTT TTCTCCACAT CCGCCTTGGC	6120
TTCTGGAGAG AACTTCTCAC GGGCGTACCA AAGACCCAGG GCTTGCTTGA AAGGTTCTTG	6180

850

TGCTAGATGA TAAGCTGCTT TGACCTTATC TTTTGCCTCT GGAAGTCCAG AAAGGGCAGC	6240
GCTGTAGGCA CCAGACAAAA CACGGATATC CTCTGTAAAG TAGCTGGTTG AAAGATTGAC	6300
AACACTCAAA ATCAAGGTTG CTTTAAGGAG AGACCAGGCT TCCTCACTGT AGAATTGCTC	6360
TGCTGCTTGC CAGAAACGTT CCTCGTCTAC AATAACCTTG TCTGGTAATT GCCCAATAAC	6420
TGCTTTGAAG AAGTCATCCA AAGGTAGGGC AGGCGGCAAT TTCTTGAAAT CTTGTAAGA	6480
ATATGGATGA TAGAGTTTAG CATATTCTGA ACTTTCTTCA TTAGAGAGCA CCACTGCCGC	6540
AACTCGGCGG TCCAATTCAA GTCTTTTTC TAGCAAGTCT TCAATTTCTT CATCAGAGAA	6600
ATCATAAGCC TTGAGGAGAT TTGCGCTGCT TTCTTTCCAA AGAGTCAAGA GCTCTTCGCG	6660
CTGAGGATGT TCTTCTGCA? AGTAGGTCGT ATCTGGCAAG ATTGTGCTTG GAGCGCTAGC	6720
CCATAGAACA TTGATTCTAG CATCCATAAA GTCTGGCGAT ACACCAAAAG GAAGGAAGTT	6780
TGGTTTTCTT GCAAGCTCAA ACTCTGCTAG TTTAGCTGTA AAATCCGCAA AAGTCTCCAA	6840
TTCTTGGAAT TCTTTAAGGA GTGGTAAGAC AGGTGTGATA CCGTCAGCTT CTCTCTTGTC	6900
AAAATCACGA ACTAGGCGGT GGTATTTGAC AAAGTTTTCC AAGATAGCAT CCTCAGGCAC	6960
TTCTTCACCT GCTAACCACT TGTCTGTTGT CGCCAGCATC AGGTCTTCAA TTCTCTGGTC	7020
TAAATCAACA AAACCTCCTG TTTGAGACTT ATCTGCTGGG ATTTAGCTG TCTGTTGCCA	7080
TTCTCCATTG ATAGCATCAT AAAAAATCATC TTGATAACGT GTCATCTTGT TCTCGCTTTC	7140
ATTTGTATTT GCATTTATCT TAACAAAAAT CG	7172

(2) INFORMATION FOR SEQ ID NO: 121:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 4518 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 121:

CGGGAAGTTA TGCGATCTAG ACTTCGTTCC TGTACAGCTA CTTTCTCAGG TGGTCTTGTT	60
GTTTGATGA GTTTGTTTAG AGAGGATCTT TCTATGTCTT TCTTCTTAT TTTTGTTTTA	120
TATGCTTTTC TGATTTCCTA TCTAATTTAT GGTATTTC A GACTAAAAAG GAAATACCGA	180
GTAGATGAAT AGCAAGGTTT TAGGTCTTCA GATTGATTTT TAGCACTCTT GATAAAAGAG	240
TGCTAATTTT TTGAGTTTTT GTCTTGACAT TCTCTTCTAA GGGTGTATAA TAGAATCATG	300
AGTTAGCACT TGGATGCATT GAGTGCTAAT TGATCAGACA GAGAGGAGTG ATGAGATGGT	360
TACAGAGCGT CAGCAGGATA TTTTAAATCT GATTATTGAC ATCTTTACCA AAACGCACGA	420

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ACCTGTCCGA TCAAAAGCCT TGCAAGAGTC TATTAAGTCT AGCAGTGCAA CCATTGCTAA	480
TGACATGGCG GAACTAGAAA AACAAAGGTT GCTTGAGAAG GCTCATACTT CAAGTGGTCG	540
GATGCCAAGT GTTGCTGGTT TTCAGTACTA TGTGAAACAC TCACTGGATT TTGACCGGCT	600
GGCTGAAAAT GAGGTATATG AGATTGTCAA AGCCTTTGAT CAGGAATTCT TCAAATTGGA	660
GGATATTCTG CAAGAGGCTG CTAAGTTACT AACAGACCTG AGTGGCTGTA CGGTAGTGGC	720
ACTGGATGTT GAGCCGAGCA GGCAACGTTT GACAGCCTTT GATATCGTTG TTTTGGGGCA	780
ACATACAGCC TTGGCGGTAT TTACCCTAGA CGAGTCGCGA ACGGTTACTA GTCAGTTTCT	840
GATTCCAAGG AACTTCTTGC AGGAGGATTT GCTGAACTG AAGAGCATCA TTCAGGAACG	900
TTTCCTCGGT CACACCGTTT TAGATATTCA CTACAAGATT CGGACGGAGA TTCCGCAGAT	960
TATCCAGCGT TACTTTACAA CAACGGATAA TGTATCGAT CTCTTTGAAC ACATCTTTAA	1020
GGAAATGTTT AACGAAAACA TTGTGATGGC GGGCAAGGTC CATCTCTTGA ATTTTGCCAA	1080
TCTAGCAGCC TATCAGTTCT TTGACCAACC GCAAAAGGTG GCCTTGGAGA TTCGTGAGGG	1140
GTTGCGTGAG GATCAGATGC AAAATGTTTC TGTTCGAGAC GGTCAAGAGT CCTGTTTAGC	1200
TGACCTAGCG GTAATCAGTA GTAAGTTCCT CATTCTTAT CGGGGAGTTG GAATTCTAGC	1260
CATTATCGGT CCAGTTAATC TGGATTACCA ACAGCTAATC AATCAAGTCA ATGTGGTCAA	1320
CCGTGTTTTG ACCATGAAGT TGACAGATTT TTACCGCTAC CTCAGCAGTA ATCATTACGA	1380
AGTACATTAA GATTGAAATC ATTAAAGGAG GCGAACATGG CCCAAGATAT AAAAAATGAA	1440
GAAGTAGAAG AAGTTCAAGA AGAGGAAGTT GTGAAAACAG CTGAAGAAAC AACTCCTGAA	1500
AAGTCTGAGT TGGACTTGCC AAATGAACGT GCAGATGAGT TCGAAAACAA ATATCTTCGC	1560
GCTCATGCAG AAATGCAAAA TATCCAACGC CGTGCCAATG AAGAACGTCA AACTTGCAA	1620
CGTTATCGTA GCCAGGACTT GGCAAAAGCA ATCTTACCAT CTCTTGACAA CCTTGAGCGT	1680
GCACTTGCAG TTGAAGGTTT GACAGATGAT GTGAAGAAGG GCTTGGGGAT GGTGCAAGAA	1740
AGCTTGATTC ACGCTTTGAA AGAAGAAGGA ATTGAAGAAA TCGCAGCAGA TGGCGAATTT	1800
GACCATAACT ACCATATGGC CATCCAAACT CTCCCAGCAG ACGATGAACA CCCAGTAGAT	1860
ACCATCGCTC AAGTCTTTCA AAAAGGCTAC AAAGTCCATG ACCGCATCCT ACGCCAGCA	1920
ATGGTAGTGG TGTATAACTA AGATATAAAG CCCGTAAAAA GCTCGCAGTA AAAATAGGAG	1980
ATTGACGAAG TGTTGATGA ACACAAGAAA ATCTATCTTT TTTACTCAGA GCTTAGGGCG	2040
TGTTGATTC GGCAATTCTG ACGGTAGCTA AAGCAACTCG TCAGAAAACG GCAATCGCTA	2100
TGGCGTTTGC CTAGCTTCCT TACTAAGTCTG TCGTCGAAAT AAAATCGATT TCGACTCCTC	2160

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GTGTCGCAAT TTACATAATA GAAAACTTGT CCGAAACGAC AATAAACTAT GAAGAAAGAT	2220
AAAATATGTT TGGCTTTGTA ATAGTGAGCG AAGCGAACCA AACACGATAC TCTTCGCCGT	2280
GGCGCTATTT GCGCAAATTT TGAGACCTTA GGCTCAAAGT TTAGTCAAAG AGATTGACGA	2340
AGTCAAGCTC TGACGGCGTC GCCACTGTCT CCACTTAAGA AGAGTATCAA AAAGAAAAAT	2400
AGAAAATTAA CTAACAAGGA GAAAAACACA TGTCTAAAT TATCGGTATT GACTTAGGTA	2460
CAACAACTC AGCAGTTGCA GTTCTTGAAG GAACTGAAAG CAAAATCATC GCAAAACCAG	2520
AAGGAAACCG CACAACTCCA TCTGTAGTCT CATTCAAAA CGGAGAAATC ATCGTTGGTG	2580
ATGCTGCAAA ACGTCAAGCA GTTACAAACC CAGATACAGT TATCTCTATC AAATCTAAGA	2640
TGGGAACCTC TGAAAAAGTT TCTGCAAATG GAAAAGAATA CACTCCACAA GAAATCTCAG	2700
CTATGATCCT TCAATACTTG AAAGGCTACG CTGAAGACTA CCTTGGTGAG AAAGTAACCA	2760
AAGCTGTTAT CACAGTTCCG GCTTACTTCA ACGACGCTCA ACGTCAAGCA ACAAAGACG	2820
CTGGTAAAT TGTCTGCTT GAAGTAGAAC GTATTGTAA CGAACCAACT GCAGCAGCTC	2880
TTGCTTATGG TTTGGACAAG ACTGACAAAG AAGAAAAAT CTTGGTATTT GACCTTGGTG	2940
GTGGTACATT CGACGTCTCT ATCCTTGAAT TGGGTGACGG TGTCTTCGAC GTATTGTCAA	3000
CTGCAGGGGA CAACAACTT GGTGGTGACG ACTTTGACCA AAAAATCATT GACCACTTGG	3060
TAGCAGAATT CAAGAAAGAA AACGGTATCG ACTTGTCTAC TGACAAGATG GCAATGCAAC	3120
GTTTGAAAGA TGCGGCTGAA AAAGCGAAGA AAGACCTTTC TGGTGTAAT TCAACACAAA	3180
TCAGCTTGCC ATTTATCACT GCAGGTGAGG CTGGACCTCT TCACTTGGA ATGACTTTGA	3240
CTCGTGCGAA ATTTGACGAT TTGACTCGTG ACCTTGTGTA ACGTACAAAA GTTCCAGTTC	3300
GTCAAGCCCT TTCAGATGCA GGTTTGAGCT TGTCAGAAAT CGACGAAGTT ATCCTTGTG	3360
GTGGTTCAAC TCGTATCCCT GCCGTTGTTG AAGCTGTTAA AGCTGAACT GGTAAAGAAC	3420
CAACAAATC AGTAAACCT GATGAAGTAG TTGCTATGGG TGCGGCTATC CAAGGTGGTG	3480
TGATTACTGG TGATGTCAAG GACGTTGTCC TTCTTGATGT AACGCCATTG TCACTTGGA	3540
TCGAAACAAT GGGTGGAGTA TTTACAAAAC TTATCGATCG CAACACTACA ATCCCAACAT	3600
CTAAATCACA AGTCTTCTCA ACAGCAGCAG ACAACCAACC AGCCGTTGAT ATCCACGTT	3660
TTCAAGGTGA ACGCCCAATG GCAGCAGATA ACAAGACTCT TGGACGCTTC CAATTGACTG	3720
ATATCCCAGC TGCACCTCGT GGAATTCCTC AAATCGAAGT AACATTTGAC ATCGACAAGA	3780
ACGGTATCGT GTCTGTAAAG GCCAAAGACC TTGGAACCTCA AAAAGAACAA ACTATTGTCA	3840
TCCAATCGAA CTCAGGTTTG ACTGACGAAG AAATCGACCG CATGATGAAA GATGCAGAAG	3900
CAAACGCTGA AGCCGATAAG AAACGTAAAG AAGAAGTAGA CCTTCGTAAT GAAGTAGACC	3960

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AAGCAATCTT TGCGACTGAA AAGACAATCA AGGAAACTGA AGGTAAAGGC TTCGACGCAG	4020
AACGTGACGC TGCCCAAGCT GCCCTTGATG ACCTTAAGAA AGCTCAAGAA GACAACAACT	4080
TGGACGACAT GAAAACAAAA CTTGAAGCAT TGAACGAAAA AGCTCAAGGA CTTGCTGTTA	4140
AACTCTACGA ACAAGCCGCA GCAGCGCAAC AAGCTCAAGA AGGAGCAGAA GGCGCACAAAG	4200
CAACAGGGAA CGCAGGCGAT GACGTCGTAG ACGGAGAGTT TACGGAAAAG TAAGATGAGT	4260
GTATTGGATG AAGAGTATCT AAAAAATACA CGAAAAGTTT ATAATGATTT TTGTAATCAA	4320
GCTGATAACT ATAGAACATC AAAAGATTTT ATTGATAATA TTCCAATAGA ATATTTAGCT	4380
AGATATAGAG AATTATATTA GCTGAACATG ATAGTTGTAT CAAAAATGAT GAAGCGGTAA	4440
GGAATTTTGT TACCTCAGTA TTGTTGTCTG CATTGTGATC GGCGATGGTA CCGTATCTGA	4500
CGAACGTTCA GCTTATAT	4518

(2) INFORMATION FOR SEQ ID NO: 122:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 8145 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 122:

TGCTATTTTC GATTCCCTTG GCGTTTTGA TTGCCTTTGC CTTGCAAGTC CATTGGAAGC	60
CCCTCCATTA TCTGATTAAC ATTTACATCT GGGTTATGCG AGGAACCCCC TTA CTCTTGC	120
AACTGATTTT TATCTATTAT GTGCTCCCAA GTATTGGGAT TCGTTTAGAC CGCCTTCTTG	180
CAGCTATTAT TGCCTTTGTT CTCAACTATG CAGCTTACTT TGCAGAAATP TTCCGTGGGG	240
GAATTGACAC TATTCCAAGA GGACAGTATG AGGCCGCCAA GGTCTTGAAG TTTAGCCCTT	300
TTGACAGAGT GCGCTATATT ATCTTGCCCC AAGTGACCAA GATCGTTCTT CCTAGTGTCT	360
TTAATGAAGT TATGAGTTTG GTCAAGGATA CTTCTTTGGT CTATGCTCTC GGAATTTT CAG	420
ACCTTATCTT GGCTAGTCGA ACAGCTGCTA ACCGCGATGC TAGTCTAGTT CCTATGTTCT	480
TGGCAGGAGC CATTTATTTG ATTTTGATTG GGATTGTGAC AATTATTTCC AAAAAAGTTG	540
AGAAGAAGTA TAGTTATTAT AGATAGGAGG CTGCCATGTT AGAATTACGA AATATCAATA	600
AAGTCTTTGG AGACAAACAA ATCCTGTCTA ATTTCACTCT AAGTATTCCT GAAAAGCAAA	660
TCCTGGCTAT CGTTGGACCT TCTGGTGGAG GTAAGACAAC TCTTTTACGT ATGCTTGCAG	720
GTCTTGAAC CATTGATTCA GGGCAAATCT TTTATAATGG ACAACCTTTA GAGCTGGATG	780

854

AATTGCAGAA GCGCAATCTA CTGGGATTTG TCTTCCAAGA TTTTCAACTA TTTCTCATC	840
TATCAGTTCT GGAAAATTTG ACTTTATCGC CTGTGAAGAC CATGGGAATG AAGCAGGAAG	900
AGGCTGAGAA GAAGCGGAGT GGACTCTTGG AACAGTTAGG ACTAGGAGGA CACGCAGAGG	960
CCTATCCTTT CTCACTATCT GGTGGGCAAA AGCAGCGGGT GGCTTTGGCG CGTGCTATGA	1020
TGATTGACCC AGAAATCATT GGCTACGATG AACCAACTTC TGCCCTGGAT CCAGAATTAC	1080
GTTTGGAAGT GGAGAAGCTA ATCTTGCAAA ATAGGGAAC TGGGATGACC CAGATTGTGG	1140
TTACCCATGA TTTGCAGTTT GCTGAAAATA TCGCAGATGT ATTATTGAAA GTAGAACCTA	1200
AATAGGAGGA AAAATGGATG AAAAAATGGA TGCTTGATTT AGTCAGTCTG ATGACTGCTT	1260
TGTTCTTAGT AGCTTGTTGG AAAAAATCTA GCGAAACTAG TGGAGATAAT TGGTCAAAGT	1320
ACCAGTCTAA CAAGTCTATT ACTATTGGAT TTGATAGTAC TTTTGTTCCA ATGGGATTTG	1380
CTCAGAAAGA TGGTTCTTAT GCAGGATTTG ATATTGATTT AGCTACAGCT GTTTTTGAAA	1440
AATACGGAAT CACGGTAAAT TGGCAACCGA TTGATTGGGA TTTGAAAGAA GCTGAATTGA	1500
CAAAAGGAAC GATTGATCTG ATTTGGAATG GCTATTCCGC TACAGACGAA CGCCGTGAAA	1560
AGGTGGCTTT CAGTAACTCA TATATGAAGA ATGAGCAGGT ATTGGTTACG AAGAAATCAT	1620
CTGGTATCAC GACTGCAAAG GATATGACTG GAAAGACATT AGGAGCTCAA GCTGGTTCAT	1680
CTGGTTATGC GGACTTTGAA GCAAAATCCAG AAATTTTGAA GAATATTGTC GCTAATAAGG	1740
AAGCGAATCA ATACCAAACC TTAAATGAAG CCTTGATTGA TTTGAAAAAC GATCGAATTG	1800
ATGGTCTATT GATTGACCGT GTCTATGCAA ACTATTATTT AGAAGCAGAA GGTGTTTTAA	1860
ACGATTATAA TGTCTTTACA GTTGGACTAG AAACAGAAGC TTTTGCGGTT GGAGCCCGTA	1920
AGGAAGATAC AAAGTTGGTT AAGAAGATAA ATGAAGCTTT TTCTAGTCTT TACAAGGACG	1980
GCAAGTTCCA AGAAATCAGC CAAAAATGGT TTGGAGAAGA TGTAAGCAACC AAAGAAGTAA	2040
AAGAAGGACA GTAAGATAAA ATAGTGGCTG AAAGTGGCTT TTGATTAGCA AAACGTAGTT	2100
TTTTTTGTAA TCTAGGAAAA CGATAATAGC GATTGAATAT GGATAATTGA ATATGGAATA	2160
GCCCACTGTG ATTTCTAAAA CATTGTTAAA AATTGATTTG ACTTCCAAAA TTAAAATGTT	2220
CTGTAATGAA ATACTGATGT AACTGTTTGA GGAACAATAA AACGCATAAT ATCAAGGTTT	2280
TTGCACCTTA CATTATGCGT TTTTGTGATT TTAAGACTTG TTAGCTGATT TTTTACAATC	2340
CTGCGAAATC TTTGATTTCT TGTGCTGACA TTGAAGAGTC GCAACGGACG TTGATTTGTC	2400
CATCTGTAAT ATGAACAAAA CCTGGTACAG TTGGGATTCC ATAGCGTGAG CGGAATGCTT	2460
GCAAATCATT GAGTTGGCTT GGTCTTCAC TATTGATGAA GTAAATGTGA GCTTTGGTTT	2520
CAGCTACGAC ACCTGACAA GTACCTGCAA ATTTACGGCA GTAAGGGCAA GTTTTCCGAC	2580

855

CGATAAAGAA GGTTCAGTT TCTTTTTAT CAAGAGCTTC TTGCGCACGC ACAACTGTAG	2640
TGACTTCAAG GTCTTTGATG TTATCTAAAA ATTGTTCCAT GAGATTACCT CGCTTTCATT	2700
GATAAGTCTA GTATGCCATA AAGTTTCTAA AATTGCTTAG ATTTGATACG AAAAAAGATG	2760
AGGTTGGTTG GTCTCATCTT TTATAGGTCT TTATTTTACA AATGCATTGA TTTCTGCTTC	2820
GATGTTAGCA ATCTTAGCTT GTGATTCTTC GTTGGTTTCC CCTACAACG CAATGTAGAA	2880
CTTGATTTTT GGTCTGTAC CTGAAGGGCG AACGGCAATC CATGAACCGT CAGCAAGTGT	2940
GTATTTCAAC ACATCACTTG GAGGAGTTGT CAAGTTTGTG ACAGTACCGT CAGCAACAGT	3000
AGCAGTTTGT GCCTTGAAGT CTCTACGAC AGTGATAGCT GTTGCCTTCC ATTCTGTTGG	3060
AGCATTGTTG CGGAATTTAG CCATAATCGC TTTGATTTGT TCAGCACCAT CGACACCTGA	3120
AAGAGTAACA GAGATTGTTT TTTCTGCGTA GTAGCCATAT TCTTTATAGA TTTCTTCGAT	3180
ACCGTCAGCA AGTGTCAAAC CACGAGAACG GTAGTAGGCA GCAAGTTCAG CAACTACAAG	3240
AACGGCTTGG ATGGCATCTT TATCACGTAC AAATGGTTTA ATCAAGTAAC CGAAGCTTTC	3300
TTCAAATCCC ATCATGTAAG TGTGGTGTG TTTTCTTCG AATCTTGGG TTTTTCAGC	3360
GATAAATTTG AAACCTGTCA AGACGTGAA CATAGTTGCG CCGTAGCTTT CAGCAATCTT	3420
CGTTACCAAG TCAGTTGAAA CGATAGATTT GCAGAGAGCG GCATTTTCAG GAAGAGTTCC	3480
AGCGTTTTTG TGAGCTTCCA AGATGTATTT AGCCATGATA GCACCGATTT GGTACCTGA	3540
AAGGTTGAGG TAGCTACCAT CTTTTGAAG AACTTCAACA CCAACACGGT CAGCGTCTGG	3600
GTCAGTTGCG ACAAGAACAT CTGCACCAAC TTGACGACCA AGTTCTTCAG CAAGGGCAAA	3660
GGCTGCTTGG CTTTCTGGGT TTGGAGATGT TACAGTTGAA AAGTCTGGGT CAGCAGTTGC	3720
TTGCGCTTCA ACAACTTGAA CAGAGTCAA TCCTGCTTGG GCAAGAGCAC GACGAGCCAA	3780
CATTTACCA GTACCATGAA GTGGTGTGTA GACAATCTTC ATGTCTTTAC CAAATCTTC	3840
AATCAAGGCT GGGTTGATGT TTATGTCCTT AACCTCTTTA AGGTATTCTA TGTCAACAGC	3900
TTGCGCGATA ACTTCAATCA AGCCAGAAGC TTTTTCAGTT TCCACATCAG CAACTTCAAC	3960
TGCAAATGGG TTTTCGATTG CACGGATATA AGTAGTCAA GCGTCCGCAT CGTGTGGAGG	4020
CATTTGTCCA CCGTCTTCAC CGTAAACCTT GTAACCGTTA AATGGAGCAG GGTGTGGCT	4080
GGCTGTGACC ATGATACCTG CGAAACAGTT GAGATGACGA ACTGCAAATG ATAGTTCTGG	4140
AGTCGGACGA AGGCTTTCAA ATACGTAAGA TTTGATGCCG TGTTTAGCAA GAACTGCCGC	4200
AGATTCAAAG GCAAACCTCAG GTGAGAAGTG ACGGCTATCG TAGGCAATTG CTACACCGCG	4260
TTCTTTCTCG TTTCCACCTT TTGACTCAAT CAAACGAGCC AATCCTTCAG TAGCTTGCGG	4320

856

AACAACGTAG ATGTTGATAC GGTTCGTACC AGCACCAACC AAGCCACGCA TACCTGCAGT	4180
ACCAAATTCA AGATTGTAT AGAAGGCATC TTCCTTAGTT TTTTCGTCCA TATTTTCCAA	4440
ATCTTGACGA AGGTAGTCAC GAAGCTCCAC AAAATCAACC CATTTCTGGT AATTTTCTTG	4500
GTAAGACATT CAAATTCTCC TTTATTTTAA AAACATTTAA TCAGTTTAAT TATATCATTT	4560
TTTTTAGTTT TAGTAAAACC TTATCTGCTT CGAACATCTC TTCAAACCAG GTCAGATTGA	4620
ATTTTGGGGT TATATGATGT TGAGGCTAGG AAAAATTCAA TTTCAGTAAA AAAAGTAAGT	4680
CTTCTCATAA CAAAACATTG ATATAGTTAC TTAGTTTTAA ACAAGCATAT TATAATAAAG	4740
CTATGGCATA TAGTACTGAT TTTAAACAGC GAGCATTAGA TTACATCAAA GAGGGGCACA	4800
GCCATGTCGA GGCAGCCAAG TTTTGTGGTG TTGGCGTCAG AACTCTCTTC ACGTGGGAAA	4860
AGAAAGACGT GAACAAGAAC ACATAGAGAG GAAAAAGCGA GTCGTCAAAA ACCGAAAGAT	4920
TCCTTTAGAG GAATTGAAAG CCTTTGTAGA GGTCATCCA GATGCTTTTT TACGGGAAAT	4980
TGCGGCACAT TTTGATTGTG CTGTTCCCTC AGTATGGGCA GCTTTAAAGC AGATTAAGGT	5040
CACTTTAAAA AAAGATGACG AGCTTTAAGG AACAAGACCC AGAAAAGTAG CCTTATTTCT	5100
TAAGAATTTT AATAGTTTAA AGCACCTAGC ACCTGTTTAT ATTGATGAAA CAGGAATCGA	5160
CCGCTATCTC TATCGTCCTT ATGCAGGGGC TCCTAGAGGG GAGAAAGTCT ATGAAAAGAT	5220
TAGCGGACGT CGTTTTGAGC GAACTTCAAT TGTTCAGGA CAAGTAGACG GAGAGTTTAT	5280
AGCTCCCATG ATTTACAAGA AAAGCATGAC AAGCGATTTC TTTGTGGAGT GGTTCAAAAC	5340
GCAACTCCTA CCTGCTTTGA AGACACCTCA TGTATTGTGC ATGGGCAATG CTGCTTTTCA	5400
TCCAAGAAGC ATTTTGGATG AACTCTGCAT CCAAGATAAA CACTTTTCTT TACCTCTACC	5460
ACCTTATCA CCGGATTGTA ATCCTATTGA GCAAGCTTGG GCTATCTTGA AAAAGAAAGT	5520
GACGGATGTA TTAAGGGAAG TTCCAACCTAT TTTGAATGT TTGGAATGCT TTTTAAAAAC	5580
TAGATGACTA TAACGGTTCT AAAGGAACCT ATCGAGTAGT CATTAAACT AAGGATACTG	5640
CTGGTTAAGA GAAGACGTA TACAATCAAA CCATTCACCG TGTAGCCGAA ATCGTTCAGA	5700
ATGAAGACTT GTATCAGAAT GAAGACTTGT ATAAGAAAGG TTTGAATGTT GAACTTGGCG	5760
ACCAACAAAT TAAGGGATTT TTTGAAGCAG AGTTTAAAAA TCGTATTAAAT GGAGTTCTTA	5820
ATACTAAAAA AAAAAATAGT ACATTAAATC GTGTAAATAA AAAAACTATA CACCAGAGCA	5880
ACAAAAACTC CATGATCAAT TTGAAGCAGA AGCAACGGAA GATGCTAAAA AACAAGGCCA	5940
TATTGTGTTG AATGTTGACC AGGATTTCAT GAGCATATCT AAGTCTAATA AAAGTGGTTC	6000
AGACTGGAAG AAAACTTTCA CAGTGAGGAT AACCAATAGG CTAGCAAATG ACTTGAATAA	6060
TGTCTTGAAA CAGGTTGATA AAGATACTCC TAATACCCCA ACTTGGCTAA ACTCAGCTCC	6120



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TTCTAAAGCT AAAGATGATG ACAGACTATA TAAACTACTG AAGACTCTTA TACCAGGAGA	6180
AAATTACCTA TCATGTTAAG GATAATCAGC TAGAAGTAGA AACAGATAAA TACACATATA	6240
CTGCCGCTAG AAATGGTAGT AAGGAAGTTG GTATTCAAGA GTCAGATATA GCAGCAACTC	6300
TAAGTGCCGA TGAATATAAT TCTAATCGCC AAACCTTTTGA GAGAGAATAC AAATACAAAA	6360
GCAAAATGCCC TTAATAATGG TTGGGCTAGA TCTGGTTCTG AAGAGTTCAA AAAGTTCTCC	6420
CACTTTGTAG GGGTAGACAA AGGGATTGTG CGAACGAATG TACTGACTGG TAAAAAACTA	6480
TCTGATAAGA TTAGGAAAGA AGTGGGCTCT GGAGATAGCA AACTAGGAAA AGGCGGTAT	6540
TTCTCTACTG GGGATGTTCT ATTAGGAAAA GATGTTGTTT CTTATACCGT ACAAGTATTT	6600
TCAGAGAATA ATGAAAGAGT AGGAGTAAAC ACTCAAAGTC ACCGTGTTCA GTATAATCTC	6660
CCAATTCTAG CTGACTTTTC AGTCATCCAA GATACTGTGG AACCATCACG AACCCTGTGT	6720
GAAAAAATCA TTCCAAAACCT AAATATTCCC GAAGAAGAGA AAGGGAAAAAT AACCGAAGAA	6780
ATCAAGAAAA AGAAAAAAC CTCAGAATTG GCAGAACTAA TCTCAGAAAA TGTGAAAGTT	6840
CGCTATGTTG ATGAACAAGG GCGTTTGCTA TCATTGAAAA ATGATACTGG AATTGGAGAA	6900
AAAGAAAGTG ACGGAACCTA CATTACCAAT AAAAAACAAC TGATTGGTAC CAGCTATAAT	6960
GTCACAGATA AAAAAGCTAG TAGCATGACT ACTACTGACG GAAAAATTA TACTTTTAAA	7020
GAAGCAGATA CAAATTCTGC AAGTTTAACT GGGAAATATTG TAAGCGAAGG TAGAACAGTG	7080
ACCTTAGTTT ATAGAGAAAG CGAAGCGCCA ACCACTGCTA CAGTAACAGC CAATTACTAT	7140
AAAGAAGGTA GGCAAGAGAA GTTGGTAGAG TCTGTTATAA AAGCTGATTT AGCGATAGGT	7200
TCTGAGTATA CCACAGAATC AAAAAGTATT GAAGGGAAAA CAACAACTGA GGACAAAGAA	7260
GACCGAGTTA TCACAAGGAA AACAACATAC ACCTTGGTAG CAACTCCTGA AAATGCGTAC	7320
CAGAAGACGG TGCAACAGTT GACTATTACT ACCGTGAGAA TGTGAGGAA ACAGTGGTTC	7380
CCAAAACAGC AACCTCTACT GAGACGAAGA CTATAACGCG TATCATTCAT TACGTTGATA	7440
AAGTTACGAA CCAAAATGTA AAAGAAGATG TTGTTCAACC TGTAACCTTA AGCCGTACAA	7500
AAACTGAGAA CAAGGTCACG GGAGTTGTAA CCTACGGTGA ATGGACAACA GGAAACTGGG	7560
ACGAGGTTAT ATCTGGTAAG ATTGACAAGT ACAAAGATCC AGATATTCCA ACAGTTGAAT	7620
CACAAGAAGT TACGTGAGAC TCTAGTGATA AAGAAATAAC GGTAAGGTAT GACCGTTTAT	7680
CAACACCAGA AAAACCAATC CCACAACCAA ATCCAGAGCA TCCAAGTGTT CCGACACCAA	7740
ACCCAGAACT ACCAAATCAA GAGACTCCAA CACCAGATAA ACCAACTCCA GAACCAGGTA	7800
CTCCAAAAAC TGAAACTCCA GTGAATCCAG ACCCAGAAGT TCCGACTTAT GAGACAGGTA	7860

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AGAGAGAGGA ATTGCCAAAC ACAGGTACAG AAGCTAATGC TACCTTGGCT AGTGCTGGTA	7920
TCATGACCTT GTTAGCTGGT CTAGGATTAG GATTTTTCAA GAAAAAAGAA GATGAAAAAT	7980
AATAGATTTT AGAATCTAGG AACCAGGAAA AGCTCACAGA TGTGGGCTTT TTTCCTGGTT	8040
TTGAGAACGA GGTCTTTCGT AAAGAATAAA AACGCTTACA AGTCTGTTGA ACTGGGAAAC	8100
TATGAATCCT ATTTTTTTAA AAATATTTC AGAAATCAGT TGCGG	8145

(2) INFORMATION FOR SEQ ID NO: 123:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 8697 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 123:

CGGTACCGGG AACGATACTT AGTCTAATTT TGCACCTTTT CCATGTATGG TAAAGGTTTT	60
TCTTTTTTTA AAAAGGAAAA CGAGAAGAGG AGGTTCTTAT GAAAGCAAGC ATTGCCTTGC	120
AAGTTTTACC CCTAGTACAG GGGATTGATC GGATAGCTGT TATTGATCAG GTCATTGCTT	180
ATCTGCAWAC TCAAGAAGTG ACGATGGTAG TGACACCATT TGAAACGGTC TTGGAAGGGG	240
AGTTTGATGA GCTTATGCGC ATTCTAAAAG AAGCGCTGGA AGTGGCAGGG CAGGAGGCAG	300
ACAATGTCTT TGCCAATGTC AAAATAAATG TAGGAGAGAT TTAAAGTATT GATGAGAAAC	360
TTGAGAAGTA TACTGAGACG ACACATTAGT CTATTGGGCT TTCTCGGAGT ATTGTCAATC	420
TGGCAGTTAG CAGGTTTTCT TAAACTTCTC CCCAAGTTTA TCCTGCCGAC ACCTCTTGAA	480
ATTCTCCAGC CCTTTGTTCTG TGACAGAGAA TTTCTCTGGC ACCATAGCTG GGCGACCTTG	540
AGAGTGGCTT TACTGGGGCT GATTTTGGGA GTTTTGATTG CCTGTCTTAT GGCTGTGCTC	600
ATGGATAGTT TGACTTGGCT CAATGACCTG ATTTACCCTA TGATGGTGGT CATTGAGACC	660
ATTCCGACCA TTGCCATAGC TCCTATCCTG GTCTTGTGGC TAGGTTATGG GATTTTGCCC	720
AAGATTGTCT TGATTATCTT AACGACAACC TTTCCCATCA TCGTTAGTAT TTTGGACGGT	780
TTTAGGCATT GCGACAAGGA TATGCTGACC TTGTTTAGTC TGATGCGGGC CAAGCCTTGG	840
CAAATCCTGT GGCATTTTAA AATCCCAGTT AGCCTGCCTT ACTTTTATGC AGGTCTGAGG	900
GTCAGTGTCT CCTACGCCTT TATCACAAC TGGGTATCTG AGTGGTTGGG AGGTTTTGAA	960
GGTCTTGGTG TTTATATGAT TCAGTCTAAA AAAGTGTTC AGTATGATAC CATGTTTGCC	1020
ATTATTATTC TGGTGTGAT TATCAGTCTT TTGGGTATGA AGCTGGTCGA TATCAGTGAA	1080
AAATATGTGA TTAATGGAA ACGTTCGTAG AATTAGAATG TTTCTGAAAA AGAAAAGAGG	1140

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AAATCAAAAT GAAGAAAACA TGGAAAGTGT TTTTAACGCT TGTAACAGCT CTTGTAGCTG	1200
TTGTGCTTGT GGCCTGTGGT CAAGGAACTG CTTCTAAAGA CAACAAAGAG GCAGAACTTA	1260
AGAAGGTTGA CTTTATCCTA GACTGGACAC CAAATACCAA CCACACAGGG CTTTATGTTG	1320
CCAAGGAAAA AGGTTATTTC AAAGAAGCTG GAGTGGATGT TGATTGAAA TTGCCACCAG	1380
AAGAAAGTTC TTCTGACTTG GTTATCAACG GAAAGGCACC ATTTGCAGTG TATTCCAAG	1440
ACTACATGGC TAAGAAATTG GAAAAAGGAG CAGGAATCAC TGCCGTGCA GCTATTGTTG	1500
AACACAATAC ATCAGGAATC ATCTCTCGTA AATCTGATAA TGTAAGCAGT CCAAAGACT	1560
TGGTTGGTAA GAAATATGGG ACATGGAATG ACCCAACTGA ACTTGCTATG TTGAAAACCT	1620
TGGTAGAATC TCAAGGTGGA GACTTTGAGA AGGTTGAAAA AGTACCAAAT AACGACTCAA	1680
ACTCAATCAC ACCGATTGCC AATGGCGTCT TTGATACTGC TTGGATTAC TACGGTTGGG	1740
ATGGTATCCT TGCTAAATCT CAAGGTGTAG ATGCTAACTT CATGTACTTG AAAGACTATG	1800
TCAAGGAGTT TGACTACTAT TCACCAGTTA TCATCGCAA CAACGACTAT CTGAAAGATA	1860
ACAAAGAAGA AGCTCGCAA GTCATCCAAG CCATCAAAAA AGGCTACCAA TATGCCATGG	1920
AACATCCAGA AGAAGCTGCA GATATTCTCA TCAAGAATGC ACCTGAACTC AAGGAAAAAC	1980
GTGACTTTGT CATCGAATCT CAAAAATACT TGTCAAAGA ATACGCAAGC GACAAGGAAA	2040
AATGGGGTCA ATTTGACGCA GCTCGCTGGA ATGCTTTCTA CAAATGGGAT AAAGAAAATG	2100
GTATCCTTAA AGAAGACTTG ACAGACAAAG GCTTCACCAA CGAATTTGTG AAATAATGAC	2160
AGAAATTAGA CTAGAGCAGC TCAGTTATGC CTATGGTCAG GAGAGGATTT TAGAGGATAT	2220
CAACCTACAG GTGACTTCAG GCGAAGTGGT TTCCATCCTA GGCCCAAGTG GTGTTGAAA	2280
GACCACCCTC TTAAATCTAA TCGCTGGGAT TTTAGAAGTT CAGTCAGGGA GAATTGTCCT	2340
TGATGGTGAA GAAAATCCCA AGGGGCGCGT GAGTTATATG TTGAAAAGG ATCTGCTCTT	2400
GGAGCACAAG ACGGTGCTTG GAAATATCAT TCTGCCCTC TTGATTCAA AGGTGGATAA	2460
GGCAGAAGCT ATTTCCCGAG CGGATAAAAT TCTTGCGACC TTCCAGCTGA CAGCTGTAAG	2520
AGACAAGTAT CCTCATGAAC TTAGCGGTGG GATGCGCCAG CGTGTAGCCT TACTCCGGAC	2580
CTACCTTTTT GGGCACAAGC TCTTTCTCTT AGATGAGGCC TTTAGCGCCT TGGATGAGAT	2640
GACAAAGATG GAACTCCAGC CTTGGTATCT TGAGATTAC AAGCAGTTGC AGCTAACAAC	2700
CCTGATCATC ACGCATAGTA TTGAGGAGGC CCTCAATCTC AGCGACCGTA TCTATATCTT	2760
GAAAAATCGC CCTGGGCAGA TTGTTTCAGA AATTAACTA GATTGGTCTG AAGATGAGGA	2820
CAAGGAAGTC CAAAAGATTG CCTACAAACG TCAAATTTTG GCGGAATTAG GCTTAGATAA	2880

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GTAGAAAAAT AGGGAGTTGG TGAAGATTAT CCTTTACCAG CGCCCTTTT CTTTAAAAA	2940
TGAGAAAATT TCGGTATAAT AGTCAAACAA GGTCAAGGTT TAAAGAGAGA GGTGGGTTTG	3000
TTATGAGATT TAAAAATACA TCGGATCATA TTGAGGCCTA CATCAAGGCG ATTTTAGATC	3060
AATCTGGTAT CGTGGAGTTG CAACGGAGTC AGTTGGCAGA TACCTTTCAG GTTGTTCCTA	3120
GTCAGATTAA CTACGTGATC AAGACACGCT TTACGGAAAG TAGAGGCTAC TTGGTTGAAA	3180
GTAAGCGTGG TGGCGGAGGC TACATTCGTA TAGGACGGAT TGAGTTTTCT AGTCATCATG	3240
AAATGCTCCG GGAGCTGCTT TACTCGATTG GTGAGCGAGT CAGTCAAGAA ATTTATGAGG	3300
ATATTCTCCA GCTTTTGGTT GAGCAGGAAT TGATGACCAA GCAGGAGATG AATTGCTAG	3360
AATCAGTAGC TTTGGATCGC GTTTTAGGAG AAGAAGCTCC AGTTGTTCTGA GCAAACATGC	3420
TACGTCAGAT CATAAAGAG GTAGATAGAA AAGGGAAGTA AGATGAACTA TTCAAAAGCA	3480
TTGAATGAAT GTATCGAAAG TGCCTACATG GTTGCTGGAC ATTTTGGAGC TCGTTATCTA	3540
GAGTCGTGGC ACTTGTTGAT TGCCATGTCT AATCACAGTT ATAGTGTAGC AGGGGCAACT	3600
TTAAATGATT ATCCGTATGA GATGGACCGT TTAGAAGAGG TGGCTTTGGA ACTGACTGAA	3660
ACGGACTATA GCCAGGATGA AACCTTTACG GAATTGCCGT TCTCCCGTCG TTTGCAGGTT	3720
CTTTTGTATG AAGCAGAGTA TGTCAGCTCA GTGGTCCATG CTAAGGTA CTAGGGACAGAG	3780
CACGTCCTCT ATGCGATTTT GCATGATAGC AATGCCTTGG CGACTCGTAT CTTGGAGAGG	3840
GCTGGTTTTT CTTATGAAGA CAAGAAAGAT CAGGTCAAGA TTGCTGCTCT TCGTCGAAAT	3900
TTAGAAGAAC GGGCAGGCTG GACTCGTGAA GATCTCAAGG CTTTACGCCA ACGCCATCGT	3960
ACAGTAGCTG ACAAGCAAAA TTCTATGGCC AATATGATGG GCATGCCGCA GACTCCTAGT	4020
GGTGGTCTCG AGGATTATAC GCATGATTTG ACAGAGCAAG CGCGTTCTGG CAAGTTAGAA	4080
CCAGTCATCG GTCGGGACAA GGAAATCTCA CGTATGATTC AAATCTTGAG CCGGAAGACT	4140
AAGAACAACC CTGCTTTGGT TGGGGATGCT GGTGTCGGGA AAACAGCTCT GGCGCTTGGT	4200
CTTGCCACGC GTATTGCTAG TGGTGACGTG CCTGCGGAAA TGGCTAAGAT GCGCGTGTTA	4260
GAACTTGATT TGATGAATGT CGTTGCAGGG ACACGCTTCC GTGGTGACTT TGAAGAACGC	4320
ATGAATAATA TCATCAAGGA TATTGAAGAA GATGGCCAAG TCATCCTCTT TATCGATGAA	4380
CTCCACACCA TCATGGGTTT TGGTAGCGGG ATTGATTCGA CTCTGGATGC GGCCAAATATC	4440
TTGAAACCAG CCTTGGCGCG TGGAACCTTG AGAACGGTTG GTGCCACTAC TCAGGAAGAA	4500
TATCAAAAAC ATATCGAAAA AGATGCGGCA CTTTCTCGTC GTTTCGCTAA AGTGACGATT	4560
GAAGAACCAA GTGTGGCAGA TAGTATGACT ATTTTACAAG GTTTGAAGGC GACTTATGAG	4620
AAACATCACC GTGTACAAAT CACAGATGAA GCGGTTGAAA CAGCGGTAA GATGGCTCAT	4680

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CGTTATTTAA CCAGTCGTCA CTTGCCAGAC TCTGCTATCG ATCTCTTGGA TGAGGCGGCA	4740
GCAACAGTGC AAAATAAGGC AAAGCATGTA AAAGCAGACG ATTCAGATTT GAGTCCAGCT	4800
GACAAGGCCC TGATGGATGG CAAGTGGAAG CAGGCAGCCC AGCTAATCGC AAAAGAAGAG	4860
GAAGTACCTG TCTACAAAGA CTTGGTGACA GAGTCTGATA TTTTGACCAC CTTGAGTCGC	4920
TTGTCAAGAA TCCCAGTTCA AAAACTGACT CAAACGGATG CTAAGAAGTA TTTAAATCTT	4980
GAAGCAGAAC TCCATAAAGC GGTATTCGGT CAAGATCAAG CTGTTTCAAG CATTAGCCGT	5040
GCCATTCGCC GCAACCAGTC AGGGATTTCG AGTCATAAGC GTCCGATTGG TTCCTTTATG	5100
TTCTTAGGGC CTACAGGTGT CGGGAAAAC GAATTAGCCA AGGCTCTGGC AGAAGTTCTT	5160
TTTGACGACG AATCAGCCCT TATCCGCTTT GATATGAGTG AGTATATGGA GAAATTTGCA	5220
GCTAGTCGTC TCAACGGAGC TCCTCCAGGC TATGTAGGAT ATGAAGAAGG TGGGGAGTTG	5280
ACAGAGAAGG TTCGCAATAA ACCCTATTCC GTTCTCCTCT TTGATGAGGT AGAGAAGGCC	5340
CACCCAGATA TCTTTAATGT TCTCTTGACG GTTCTGGATG ACGGTGTCTT GACAGATAGC	5400
AAGGGACGCA AGGTCGATTT TTCAAATACC ATTATCATTG TGACATCGAA TCTAGGTGCG	5460
ACTGCCCTTC GTGATGATAA GACTGTTGGT TTTGGGGCTA AGGATATTCG TTTTGACCAG	5520
GAAATATGG AAAAACGCAT GTTTGAAGAA CTGAAAAAAG CTTATAGACC GGAATTCATC	5580
AACCGTATTG ATGAGAAGGT GGTCTTCCAT AGCCTATCTA GTGATCATAT GCAGGAAGTG	5640
GTGAAGATTA TGGTCAAGCC TTTAGTGGCA AGTTTGACTG AAAAAGGCAT TGACTTGAAA	5700
TTACAAGCTT CAGCTCTGAA ATTGTTAGCA AATCAAGGAT ATGACCCAGA GATGGGAGCT	5760
CGCCCACTTC GCAGAACCCT GCAAACAGAA GTGGAGGACA AGTTGGCAGA ACTTCTTCTC	5820
AAGGGAGATT TAGTGGCAGG CAGCACACTT AAGATTGGTG TCAAAGCAGG CCAGTTAAAA	5880
TTTGATATTG CATAAAAGAA TAAAAGTATC AGCATCTGAC CATAAGTCAC AGTGGAGTGA	5940
AATTCAATGA AAATCAAAGA GCAAAC TAGG CAGCTAGCCG CAGGTTGCTC AAAACACTGG	6000
TTTGAGGTTG CAGATAGAGC TGACGTGGTT TGAAGAGATT TTCGAAGAGT ATGAAACTAA	6060
AACCTATAGC TTCTAAACGA TCCGTGGTTT TCATCATTCA ACACAAAATT CATATGTTTA	6120
TTACCCTCCG TCGTATTGT CTTAGAGCGT GTGTAGTAGA AAAAGAGCAG TCTTATCTGA	6180
AATTTTTATT CTTTCAAAG AGACCTGTTT CTTTTTTGCA TGTCAAATCC GTTCTAGCTG	6240
GTATTTGAAA AATCAAATA ATATTCAATG AAAATCAAAG AACAACTAG GAAGCTAGCC	6300
GCAGGTTGCT CAAAACACTG TTTTGAGGTT GTAGATAGAG CTGACGTGGT TTGAAGAGAT	6360
TTTCGAAGAG TATAAGCTGC AAGATGAATG ATTTTCTTGT ATTGACGTTG TTGTTGACAA	6420

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AAAGTAGCGG ATAAATGAAA TCCATTCCAT TATCATAGAT GATAGGCTGG TAGGAAATTT	6480
TCAAATAGCA TACAGGAAAT AGATGTATGG AGTTCTGGTA GTAGAAAGGG AGAGAGATGA	6540
ACATTTTAGT TGCAGATGAC GAGGAAATGA TTAGAGAAGG AATTGCAGCA TTTCTGACAG	6600
AAGAGGGTTA TCATGTCATT ATGGCTAAGG ATGGACAAGA GGTCTTGGA AAATTTCAAG	6660
ATCTCCCTAT CCATCTCATG GTACTGGATT TAATGATGCC TAGGAAGAGT GGTTTTGAAG	6720
TGTTAAAAGA AATCAATCAA AAGCACGATA TTCCTGTCAT CGTCTTGAGT GCTCTGGGAG	6780
ATGAAACTAC TCAGTCACAG GTATTTGATC TCTATGCTGA TGATCATGTG ACAAACCTT	6840
TTTCTTTGGT ACTGCTTGTC AAGCGTATTA AGGCGCTTAT CAGACGTTAC TACGTCATAG	6900
AGGATCTTTG GCGATATCAG GATGTAACAG TGGATTTTAC CTCTTACAAA GCACATTATA	6960
AAAATGAAGA AATTGATCTC AAACCAAAGG AATTACTGGT ACTAAAGTGT TTGATTTCAGC	7020
ATAAAAATCA AGTTTAAAGT AGAGAGCAGA TATTGGAAGA AATTTCAAAA GATGTAGCTG	7080
ATTTACCTTG TGATAGGGTC GTTGATGTCT ATATTCGTAC TCTTCGCAAA AAATTAGCTT	7140
TAGATTGTAT CGTGA CTGTG AAAAATGTTG GGTATAAGAT TAGCTTATGA TAAAAATCC	7200
TAAATTATTA ACCAAGTCTT TTTTAAGAAG TTTTGCAATT CTAGGTGGTG TTGGTCTAGT	7260
CATTCATATA GCTATTTATT TGACCTTTCC TTTTATTAT ATTCAACTGG AGGGGGAAAA	7320
GTTTAATGAG AGCGCAAGAG TGTTTACGGA GTATTTAAAG ACTAAGACAT CTGATGAAAT	7380
TCCAAGCTTA CTCCAGTCTT ATTCAAAGTC CTTGACCATA TCTGCTCACC TTAAGAGAGA	7440
TATTGTAGAT AAGCGGCTCC CTCTTGTCGA TGA CTGGAT ATTAAGATG GAAAGCTATC	7500
AAATATATC GTGATGTTAG ATATGTCTGT TAGTACAGCA GATGGTAAAC AGGTAACCGT	7560
GCAATTTGTT CACGGGGTGG ATGTCTACAA AGAAGCAAAG AATATTTTGC TTTTGTATCT	7620
CCCATATACA TTTTGGTTA CAATTGCTTT TTCCTTTGTT TTTTCTTATT TTTATACTAA	7680
ACGCTTGCTC AATCCTCTTT TTTACATTTC AGAAGTGA CTAAAATGC AAGATTTGGA	7740
TGACAATATT CGTTTGATG AAAGTAGGAA AGATGAAGTT GGTGAAGTTG GAAAACAGAT	7800
TAATGGTATG TATGAGCACT TGTGAAGGT TATTTATGAG TTGGAAAGTC GTAATGAGCA	7860
AATTGTAAAA TTGCAAAATC AAAAGGTTTC CTTTGTCCGC GGAGCATCAC ATGAGTTGAA	7920
AACCCCTTTA GCCAGTCTTA GAATTATCCT AGAGAATATG CAGCATAATA TTGGAGATTA	7980
CAAAGATCAT CCAAAATATA TTGCAAAGAG TATAAATAAG ATTGACCAGA TGAGCCACTT	8040
ATTAGAAGAA GTACTGGAGT CTCTAAATT CCAAGAGTGG ACAGAGTCTC GTGAGACCTT	8100
GACTGTAAAG CCAGTTTATG TAGATATTTT ATCACGTTAT CAAGAATTAG CTCATTCAAT	8160
AGGTGTTACA ATTGAAAATC AATTGACAGA TGCTACCAGG GTCGTCATGA GTCTTAGGGC	8220

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ATTGGATAAG GTTTGTACAA ACCTGATTAG TAATGCAATT AAATATTCAG ATAAAAATGG	8280
GCGTGTAATC ATATCCGAGC AAGATGGCTA TCTCTCTATC AAAAATACAT GTGCCCTCT	8340
AAGTGACCAA GAACTAGAAC ATTTATTTGA TATATTCTAT CATTCTCAA TCGTGACAGA	8400
TAAGGATGAA AGTCCCGGTT TGGGTCTTGA CATTGTGAAT AATATTTTAG AAAGCTATCA	8460
AATGGATTAT AGTTTTCTCC CTTATGAACA CGGTATGGAA TTTAAGATTA GCTGTAGAC	8520
AGATTAGTTT TTTATTAAAG TTCATATAGG GTTAACATAA GTGTGTTATT CTTTGTGTAG	8580
ATAAAAGAAA GGATACTAAT ATGGTATTAG CGATTATTTT AGTAACATTC TTTATTCGAT	8640
TGATTTTTTTT AAAGCGTTTC ATAGAGAATG AGAAACGAAT CCTTAGCAAT GGCGGGG	8697

(2) INFORMATION FOR SEQ ID NO: 124:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 4317 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 124:

AACCATACAT ACGGCAAGGC AAAGCTGACG CGGTTTGAAG AGATTTTCGA AGAGTATTAG	60
TTGCCTTTAA AGGCATCCAC CATCGTTTGA AATTCTTCAT TTGAGAGAGT AATCCCTTTG	120
CCCATTTTAG TATGGTCTGG ACTCCAAGCA CGAATATCAA ACTTTGCAGG GGCACCATTA	180
AAGCTCACAC GGTTAATTTC CTTGGTCCAA CCTTTTTCGT TTTCAGAAAG AGTCAACAAG	240
TGCTCTTCGA TTTCAAATGT AAATTCTGCC ATTTTCTTCT CCTTTTTTAG TTTCATTAGT	300
TTATTTCGTAA AATCTTGTAG ATTTTAGGAA AATTTTATAT AATATTGATA TAAAAGAAGG	360
GAGGCCAATA TGAGACATAA ATTCCAGCAA GTTCTAAATA AAATACATGA TTTTTTAAAT	420
GGATATGACC AACCTGACCA GACTGAAACC AACTCCCTTA CAGCCACTAT TGAAGAGGCT	480
ATCCAGAAAC AAACCGCTGT TCACCTTATC TTGTCTGAGA CAAGCTTTAC AGGTGACATC	540
ATCAAATATG ATCAGCAAGG CCAGCAAATT ATCGTGAAAA ATTTTTCCTCA AAATGTGAGC	600
CGGATTATCC GTATAAGCGA TATTCAACGC CTGCGATTG TCCCTCAAC TGTCCAAACA	660
GCCCCAAAAA ATAGATTTAA GAAAGAGTGA GATGTAGTTG CTTTCATCCA CTCTTTTTC	720
TTAGCGAATT TGTTCAAAAT GTAAATGAAC TGCGATATGA TCTCCATAAC CACTTCTTTC	780
CAAGTCACGT TGTAACGAT AGGAAATGTA GTGTCTGCA ATGGTAATGT AACCTGCGCC	840
CAATAAACGA TGTTCACCA TAGATTGAAT CATACTGATA GTCGCACGTT CCACCTTGGC	900

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TTCTTGTA	AACTCCAA	CTTCTTAGT	GACTTGAGCA	AGATTTTGAC	GCAAATCATC	960
TGTCAAAACA	TAAACAGTTT	GGGCTGCCTT	CAAGATGGCT	TGGTAAATCT	TATCTGGATT	1020
AAATTCAGCA	ATTCGCCAT	TACGTTTGAT	TACTTGACATA	GGTTTCTCCT	TTATTCTTTG	1080
TTTCTTTGA	TTTCTGCCAG	CATTTTTTCT	TCTTCTACTG	TCAGTTGATA	ATGTTCAAGT	1140
AAATCCGGTC	TGCGCTCGTA	GGTTTTCTTT	AAACTCTCGT	ACAATCGCCA	CTGACGAATC	1200
TTTTCATGGT	GGCCACTCAT	CAATACATCT	GGCACGACCA	TGCCTCGATA	ATCATAGGGA	1260
CGTGTGTACT	GAGGATATTC	TAAAAGACCT	GAAGAAAAAC	TATCATCTTG	GTGGCTAGAC	1320
TCCTTGCCAA	TCACCTCTGG	AATCAGGCGA	ACTGTAGCAT	CAATCATGGT	CATAGCTGCC	1380
AATTCTCCAC	CAGTGAGGAC	ATAGTCACCT	AGGGAAATCT	CATCTGTTAC	CAAGGTCTTA	1440
ATGCGCTCAT	CATAACCCCT	ATAGTGCCCA	CAGATAAAGA	TTAGCTCTTC	CTCTTGAGCC	1500
AAATCTTCAG	CATAAGCCTG	ATCAAAGTGC	TTTCCAGCAG	GATCAAGGAG	AATAACGCGC	1560
GGATTTTTCT	TTTCAATAGC	ATCAAAGGAA	TCGAAAATAG	GTTGTGCTCT	GAGCAACATG	1620
CCCTGACCGC	CTCCGTAGGG	CTCATCATCT	ACATGACGGG	CCTTTTCAGC	ATTTTCTCGA	1680
AAATTATGAT	ACTGGATATC	CAAGAGCCCT	TTTTCTCGAG	CCTTTCCAAC	GATTGAGTGC	1740
TCCAGTGGAG	AAAACATCTC	TGGAAGAGG	GTTAAATAT	CAATCTTCAT	CGTCTAACCC	1800
TTCTAAGATT	TCCACATCGA	CCCGTTTACT	TGGAATATCA	ACATTGAGAA	CCACTGGTGG	1860
GATATAAGGT	AAAAGCAAAT	CACGTTTGCC	TTTTCGTTTG	ACCACCCAGA	CATCATTAGC	1920
ACCTGGTTGC	AGGATTTCCT	TGATGGTTCC	AACCAAGCTA	TCACCCTCAT	AGACTTCCAA	1980
ACCGATAATC	TCGTGATAGT	AAAATTCACC	ATCGTCTAGG	TCATTCAAAT	CTTCCTCAGC	2040
GACCTTGAGA	CTGTATCCCT	TGTACTTTTC	GATAGTATTG	ATATGGTACA	TATCTTTGAA	2100
TTTAATAATG	TCAAAGTTCT	TCTGTTTACG	GTGGCTAGCG	ATGGTCACTG	TTTGGACAAA	2160
CTGATCTTTT	TCATCAAACA	AAACCAGCTC	AGCTCCTTTT	TTAAACCGTT	CTTCTGCAAA	2220
ATCCGTCACA	GACAAGACTC	GCATCTCCCC	CTGTAATCCC	TGCGTATTAA	CGATTTTCCC	2280
AACATTAAAG	TAGTTCATCT	TGTCTCCTGT	AATCTCCTTT	TTCCATCTT	ATTCTAACAA	2340
TTCTCGAATA	ATAGCCGCAA	TTTTTTCCGA	TTCTGACCAT	TGTAAATAAT	GGTGATTCCC	2400
TCCTAAAATG	AGTTTAGTAT	TGGAAGTCCA	ATATTCTGAT	TCTCTGTACT	CTTTTTCTCT	2460
ATAAGGCTGA	CAAAAAACAA	ATACAGGAAT	ATGAGCTTCT	ATAGATACAT	CCTCAAAATC	2520
TTCTCAGTA	ATCTCTCCAG	ATATCTGAAA	TTCTGGATCT	TGATTTTCCA	ACTCTAAGCC	2580
TTTTTCTTGC	ATTAATTCCC	AGATTTTTTT	ATTCGTTTCA	GGACTAAATG	TTGCTTGAGT	2640
TAAGTTCTTA	AAATAAAGTT	CAGGACCACA	CTCGTCAATC	AGCCTCATCT	GCTCTTCCAT	2700



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TTCTGGATAA GGATTTTCTG AAAAATCAGC AAACATGACT TTTTtagTTG TCGGTTCAAT	2760
TGCTACTAAA GTCTGACGCT TAATTGGTTT CTCGAGTAAT TTGCAAGCTA AAATTCCACT	2820
CCAACTATGT GCACAAAGTA TATATTCAGA AATTCCTAAT TCTTCAAGTA CTTCATAAAC	2880
CGCATCTGCA AGATTATCTA GATTTTTCAGCTTGGTCA TGAATCGGAC TCCTACCTGT	2940
GTTCGGAAAA TCAATTGTCA AATAACCAAT TGTAGGAGGA GGTTTTTCAG GTATAAGTGA	3000
AAAATTTTCA TAACTTGGTA GCAAACCTGC TCCGTTTAAA CAAACTAGCA CTTTCTTTTG	3060
CTTTTGATAA GTAACAGAGA GGCTACCAAT TTCTGTAGAT ACTTCAAACC TCTTCATAAA	3120
GAAATCCACT GATTCTATAT AATGAATTAT TAAAAATCCT TATCCTTTAT TTTATCACGT	3180
TCCAAGGATT TTCTCAAGTT GGAGGAAGGG GACAATATCT CTACTTTCCC TTCAATAATC	3240
CTTCCAAATT ATGTTTATGT TGGTAATTAA TGGCTGCGGT TTTGTCTTTC TCAAAGACAG	3300
TCTTGGTAAG GTCAATATGA TTAATAGCTA CGATTGCGAC GGTGTAGTAA ATGATATCAG	3360
CCAGTTCTCT GGCAAGTTCC TCGTTTGAAT CCTATCCCTT CTTTTCGACC AGAGCGCCTA	3420
TTCAAAACCT CGACTACTTC TCCGACTTCC TCCACTAACT TCATAAAGAG ACCTTCATCA	3480
GTCCGAGACT GCTGTTAATG TTCGATTAAAG TAGTCTTGA ATTGCCTAAA CGTTCAATCT	3540
TTTATAGTAT ATTGAAACTA GAATAGTACA CCTTTACTTC TAAAACATTG TTAGAAATCG	3600
ATTTGACTGT CCTGATCGAT TTGTCTGTGTT CTGTGTTTCT TTTACTATAT CTCTATTCC	3660
ACACAAAAAA GCGAGACATC CGTCCCGCCC TTCTTATTTT TCGTCAATAA CGATTCTTAC	3720
TTTTTTGTAT TCAGTTGGGA CAGAGTAGAC AATCGTTCTT ATCGCAGAAA TACTGCGACC	3780
CTTACGACCG ATTACACGAC CCACATCGCT TTGATCAAGA TTCAAATGAT ATTCCAAAAA	3840
TTCTGGTGTA TCCTCAATCT TGATAGTTAA GGCATCTGGT TGTGAAATTA AGGGTTTCAC	3900
AATCGCAATA ATGAGATTTT CAATCGTATC CATCTGTCAA CCTACTTTAA ACTTATTTTG	3960
AAAATTTAGA ATCGTGGAAT TTTTTCATA CGCCTTCTTT TGAAAGGATG TTACGTACTG	4020
TGTCTGAAGG TTGAGCTCCA TTAGCCAACC ATGCAAGAAC GCGGTCTTCT TTCAAAGTTA	4080
CTTGGTTTTT AGCAACAAGT GGGTTGTAAG TTCCAAGTGT TTCGATGAAA CGTCCGTCAC	4140
GTGGTGAACG TGAATCTGCT ACGTTGATAC GGTAGAAAGG TTTTCTTCTTA GAACCCATAC	4200
GAGTCAAACG GATTTTAACT GCCATTTTAA AAGTCTCATT TCTTTAATTT TTTATTTTCG	4260
TGAAATAGCT GAGCTATTTA GCACATGTTT TATTATAGCA GATTTCTGGC ATGTGTC	4317

(2) INFORMATION FOR SEQ ID NO: 125:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4881 base pairs

866

(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 125:

AATTTATTTG ACTGAAAATT GTAGAGGGTT CTCGAAATTT CTTGAATGGT TAAAATAAGG	60
ACAAGAGAAA ACATGGATAT CTATATCCTT GTGCCAAAAA AACCACTGCC CTCCCCAGAC	120
CAACCTGAGG AAAGCAGTGA TTCTTATTTT AGGAGTTAGG AATGAATACA CGAAATCAAT	180
TTAGCTGATT ATTTTTTGTT TTTCAAGAAT TCATCGTATT GTTTTTGCAT TTCGTTCAAT	240
ACTTTTTTCGT AGGCACCTTC AGATTTCAAT TTTCCATCA ATTCTGGAAT CGCTTTATCT	300
GGGTCTACAG TACCAGTGTT GATAGCTGTA TCAAATGTGT GCATTGTGTT AGCAATAGCT	360
GAGATTTTCAG ATTTACATT GTCAGTATTG AAGATAAATC CAAGCGCTGG AGATTTCTTTA	420
GCTTCTGCCA ATTCTTTCTT AGAATTTTCG ATTTGTTGGT CTGTAACGTT TTCGTTGATG	480
TAAAGGATCC AGTTGTTACC AGTGTTCAT CCACCCATGT GAGTGTTCCT TTTGTAGCCA	540
TCAAGAACGC GAACACGGTT TTCTTTACCT TCAATTTTTT CCCAGTTCTT GCCTTCTGGA	600
CCGTAAACAA GACCGTTCAA GAGTTCTGGG TTCGTATTCA AGAGGTTCAA GATTTCCATT	660
GATTTTTTCTT TGTTCCTAGA GTTGTGTTGAG ATGACAAAGT TAGCAACTTG TGTGTTTGG	720
TTTTTCTTGA TGAAGTTAGT AATTGGTTTG ATTTGGATAT CTTTGTGGC AACACGTGAA	780
AGCAAGCTGT TACCGTAGTC AGCTGGTCCT ACTGTTTCTT CACGAACGAA CCAAGTATCT	840
TGTTGAAGGT CAAAGGAAGT ATCGCTTCTT GCGACGTCCT TTGGAATGTA GCCAGCTTCA	900
TAGAATTTGT GAAGAGTCTT CAAGTCTTCT TTGAAACGAG GCACTTCGTA ACGGTTTACA	960
ACTTTAGTAG TATCGCCTTC AAGGTCGATA ACGAATGGAA GACCGTTTGC TACTGGGTAG	1020
TCAAAATTAT CAGATGGGAT GAAAACCTTA CCAATAGCAA ATGGTACTAC GTCTGGAGCT	1080
TTTTCTTTGA TTTGTTTCAA GACTGGCTCA AGAGTTTCGT AAGAAGTAAC ACCTGAAATA	1140
TCGATACCAT ATTTAGCAAG GAGAGTTCCG TTGAAGGCAA AGTTTTGAGA TGATGCAACG	1200
TTGGCTGCAA CTGGAACAGC GTAAATCTTA CCATTTACAG TATTACCCTT GATGTAAGCT	1260
GGGTC AAGTG CTTTGTAAG GTCTTTACCT TCTTTTTTGT ACAATTCTGT CAAGTCAGCG	1320
TAAGCACCTT TTTGAGCATT TACAATATAG TTATCTGCAA AGGCAATATC ATAGTTTTC A	1380
CCAGATGATG TGATAACTGA CATTTTCTTA CCATAGTCAC CCCAGCCAAG GTATTGGATA	1440
TCCAATTTGG CACCAACTTT TTCTTCAATG ATTTTGTGG CATTTGCTAA CAATTCATCC	1500
AAGTTGCTCTG GTTTGTCACC GATTTGGTAC ATTTTGATAA CAGGTTTGTC ACCTGAATCA	1560

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GCAGCTTTTT TGCTGTTACC TGTCAAATTT CCACAAGCAG CAAGACCTGC AGCCAGAGCG	1620
ACTACACTAG CAGATGCAAA AGCATATTTT TTCCAGTTTT TCATGATAAA AACTCCTTTT	1680
TTTATTTTAA AACTTATAAA CAATGTAATG ATCTTATACT CAATAAAAAT CAAAGAGCAA	1740
ACTAGAAAAC TAGCCGCAGG CTGCTCAAAG CACTGCTTTG AGGTTGTAGA TAAGACTGAC	1800
GAAGTCAGTT ACATATATCT ACGGCAAGGC GACGTTGACG CGGTTTGAAT TTGATTTTCG	1860
AAGAGTATTA ACTTCACACA AGGGAAGTTG GGAAGTGAAGA AATGTTATTT CTCAATAAGC	1920
ACTATTCTTT CACACCACCG ATAGTCAAAC CTTTTACAAA GTAGCGTTGG AAAAATGGAT	1980
ACAAAATCGC GATTGGAAGG GTTGCAACCA CAACCATGGC CATACGACCT GTTCTTTTCG	2040
GTAGAGCAAC TCCCAGTTGA CCAATCAAGC CGACCGCTTT GGCAATGTAG TCCATATTTT	2100
GTGGAATTTG CATGAGCAAA TATTGCAATG GATACAAGTT GTCACCTCTG ATGTAAAGAA	2160
GGGCGTTGAA CCAGTCATTC CAGAAACCAA GAGCTGTTAA GAGCGTGATG GTTGCGATAC	2220
CTGGTAGTGA CAATGGCAAA CAGATTGGA AGAAAAATCCG GGCCTCACTG GCACCATCGA	2280
TACGAGCCGA TTCTAGAATG GCTTCTGGAA TGGTCTTCTT GAAGAAGGAA CGCATCAAGA	2340
TGATGTTAAA TGGTGAGAGA AGCATGGA CAATCAAGGC CCAAACAGTG TCACCAAGCT	2400
GAAGTACACG GGTCAACCATG ATATAACCTG GTACCAAACC AGCGTTGAAC AACATACTGA	2460
GAAGGACGAA GATGGTAAAG AATCTGCGAT ACTTAAAGGT TGTCCGTGAA ATAGCGTAGG	2520
CATAGGTTGT TGTGATAAAG ACATTTGTCA ATGTCCCAAC TACGGTTACA AAGACAGAGA	2580
TGAAGAGGGC TTGTAGGATT TTATCCTTAA ACTGTGCCAA AAACTCAAAA CCGTCTAAGC	2640
CAAATTGGGA TGGGAAGAAG CTATAGCCGT ATTGGAGGAG GCTTTTCTCG TCTGTCACTG	2700
AAATAATGAT AACGAATACA AAAGGTAGGA TACAAGAGAG GGCAATCAAA CCCGAAATGA	2760
TACTGAAGAA GATATCTGCT TTCTTACTGA AGGAGTGAAT GCCGACATTA TCAATTTTTT	2820
CTTTTTTAAT TTTCTTTTTT GCCATATTCT CCTCCTTTCT AGAACAAAGC TGAGTTTGGA	2880
TCGACTCGTC TTGCAAGCAA GTTTGATAGG ATAACCAGAA TCAAACCAAC AACGGATTGG	2940
TAAAGACCGG CTGCTGCAGC CATACCGATA TCTGCTGTCT GAGTCAAACC ATTAAAGACA	3000
TATACGTCCA AAACGTTGGT TACATTGTAA AGCTGACCAG CATTGTGTGG GATTGTATAG	3060
AAGAGACCGA AGTCTGCGCG GAAGATATTT CCGACTGCAA GGATGGTCAA TACAGTTACA	3120
AGCGGAGTCA ACTGAGGAAT GGTACGTTG CGAATACGTT GCCACTTGCT AGCTCCGTCC	3180
ACTGTGCGTG CTTGCTAGTA GGTGGATCA ATTCCCATGA TCGTGCATA GTACATGACA	3240
CTGCTATATC CAAAGCCTTT CCAATACCT AGGAAAAGTA GGAGATAGGG CCAGATGCCC	3300

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AGGTCAGCGT AGAAATTGAC TTCTTTGAGA CCAAGACTTT CCAATAGATG ATTGAACACC	3360
CCTTTATCAA TATTTAGGAA GGCATCTGTA AAGAACTGA TGATAACCCA AGACAAGAAG	3420
TAAGGGAACA ACATAGAAGT TTGAAAAATC TTCACCATTG TCTTAGAACG GAGCTCGCTG	3480
AGGATAATGG CAATCCCTAC AGATACAACT AAACCTAGAA AGATAAAGCC AAGATTGTAG	3540
AGGACAGTAT TTCGTGTGAT AATAAAGGCG TCTCTTGAAC TAAATAAGAA TCTAAAATTA	3600
TCGAGTCCGA CCCATTTACT ATTTATGATA CTATCTATGA AACCATTACT GGTCTGTGG	3660
TAGTCTTTGA AGGCAACCAC GTTCCCAAAT ACTGGAATGT AAAAGAATAG AATCAACCAG	3720
AGTGCCCTCG GCAAAACCAT CAAGAGAAAG ATCCAGTTGT CTCTCAATGT TTTTGAAAAC	3780
TTTTTCATAA TTTCCTCCCT TTTTATTTTG ATATCCATCT AAAAATTCCT TTTTAGACTT	3840
TTGATAACGA TTACATTATT AGTATACTCC TATTTGCAGG TTAGGTTAAA CTCCTAATTA	3900
TAGAAAAAAC TCCACAAATT ATGTAGCAGA TTAAAACTT TATCACCCT ATCAACAAA	3960
TGTCCTAAAT CAATTGTTTA TTTTATCTCT ATTAGCCCAG TGATGGCGTC ACTCTGTTAT	4020
AAGCATCCAA CAACGGGGTA TACTGAAAAA TCTCCAGACT AGGGAACCTA GCGATAGTTC	4080
CTAATCTGGA GATTTTTAAT ATGTTATTAG GCGTTTGCTT TCAACTTAGC AATAACCTCT	4140
TTAAGATTAT CAATCACTC TGCTGCAGTA TGCTCAGAGC CTTTTTCATC TGCCAAGAAC	4200
AAAACTGCTT TTTGAAGTTC TTTTGAGAG TTTTCAAGGA CATCCTTATC TACTGTTTCA	4260
AGGTTTGACT CTTTAAGAAG TTTACTTAAT TCCTTGCGTA ATTTCTTGAG TTTGATTTGC	4320
AGACTCATCT TCTCCTGCTG TTTCTTTGCC CGCTGTTTGT CCTCCATCCT TAGTTGCTGA	4380
CTGGCTTTCC TTAATGGACT CTAGGGAAGC AATGGCATCT TTGACTGTTT GCAAGATATC	4440
ACGTAAACCT TGCTCTGTCA AACTATCATC TGCAAAAGCT TTATTAGCCT CTGCCAAAAC	4500
CAGACGTGCT GAATCTGTGG TAGGATTCGA TACACCTGTC AATGATCTCA AAAGATTTTC	4560
TAAGGTTTGA GTCTGCTTAC TAATACTAGA CTAATAATCAA AAAGTATTAT ATAACAGTGA	4620
TATGAAATCA ACTAAAGAAG AAATCCAAAC CATCAAAACA CTTTAAAAAG ACTCTCGTAC	4680
AGCTAAATAT CATAAACGCC TTCAAATCGT TCTATTTTGT CTGATGGGCA AATCTTATAA	4740
AGAGATTATA GAACTTTTAT AGTAGTTTGA AATAAGATGT GAACATCTCT ATCAGGAAAG	4800
TCAAATTAAT TTATAGAAAT ATTTTAGCAG CCAAGGTGTA CTGTTATAGA TTCAATACAC	4860
TATACTTGGT GGTTTAGCTC G	4881

(2) INFORMATION FOR SEQ ID NO: 126:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 11121 base pairs

(B) TYPE: nucleic acid

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(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 126:

AGGATCCCCG GAAAAGGAGA CTAAAAATGA AGAAAAAATT TCTAGCATTT TTGCTAATTT	60
TATTCCCAAT TTTCTCATTG GGTATTGCCA AAGCAGAAAC GATTAAGATT GTTCTGATA	120
CCGCCTATGC ACCTTTTGAG TTTAAAGATT CAGATCAAAC TTATAAAGGA ATTGATGTTG	180
ACATTATTAA CAAAGTCGCT GAGATTAAAG GCTGGAACAT TCAGATGTCC TATCCTGGAT	240
TTGACGCAGC AGTCAATGCG GTTCAAGCTG GGCAAGCCGA CGCTATCATG GCAGGGATGA	300
CAAAGACTAA AGAACGTGAA AAAGTCTTCA CCATGTCTGA TACTTACTAT GATACAAAAG	360
TTGTCATTGC TACTACAAAG TCACACAAAA TTAGCAAGTA CGACCAATTA ACTGGCAAAA	420
CCGTTGGTGT TAAAAACGGA ACTGCCGCTC AACGTTTCCT TGAAACAATC AAAGATAAAT	480
ACGGCTTTAC TATTAAAACA TTGACACTG GTGATTTAAT GAACAACAGC TTGACTGCTG	540
GTGCCATCGA TGCCATGATG GATGACAAAC CTGTTATCGA ATATGCCATT AACCAAGGTC	600
AAGACCTCCA TATTGAAATG GATGGTGAAG CTGTAGGAAG TTTTGCTTTC GGTGTGAAAA	660
AAGGAAGTAA ATACGAGCAC CTGGTTACTG AATTTAACCA AGCCTTGTCT GAAATGAAAA	720
AAGATGGTAG TCTTGATAAA ATTATCAAGA AATGGACTGC TTCATCATCT TCAGCAGTGC	780
CAACTACAAC TACTCTCGCA GGATTAAAG CTATTCCTGT TAAGGCTAAA TATATCATTG	840
CCAGCGATTC TTCTTTTGCC CCTTTTGTTT TCCAAAATTC AAGCAACCA TACTCTGGTA	900
TTGATATGGA ATTGATTAAG GCAATCGCTA AAGACCAAGG TTTTGAAATT GAAATCACCA	960
ACCCTGGTTT TGATGCTGCT ATCAGTGCTG TCCAAGCTGG TCAAGCCGAT GGTATCATCG	1020
CTGGTATGTC TGTCACAGAT GCTCGTAAGG CAACTTTTGA CTTCTCAGAA TCATACTACA	1080
CTGCTAATAC CATTCTTGGT GTCAAAGAAT CAAGCAATAT TGCTTCTTAT GAAGATCTAA	1140
AAGGAAAGAC AGTCGGTGTT AAAAACGGAA CTGCTTCTCA AACCTTCTCA ACAGAAAATC	1200
AAAGCAAATA CGGCTACAAA ATCAAAACCT TTGCTGATGG TTCTTCAATG TATGACAGTT	1260
TAAACACTGG TGCCATTGAT GCCGTTATGG ATGATGAACC TGTCTCTAAA TATCTATCA	1320
GCCAAGGTCA AAAATTGAAA ACTCCAATCT CTGGAAGTCC AATCGGTGAA ACAGCCTTTG	1380
CCGTAAAAAA AGGAGCAAAT CCAGAACTGA TTGAAATGTT CAACAACGGA CTGCAAAACC	1440
TTAAAGCAAA CGGTGAATTC CAAAAGATTC TTGACAAATA CCTAGCTAGC GAATCTTCAA	1500
CTGCTTCAAC AAGTACTGTT GACGAAACAA CGCTCTGGGG CTGCTTCAAC AACAACTACA	1560

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AACAACTCCT	TAGCGGTCTT	GGTATCACTC	TTGCTCTAGC	TCTTATCTCA	TTTGCTATTG	1620
CCATTGTCAT	CGGAATTATC	TTCGGTATGT	TTAGCGTTAG	CCCATACAAA	TCTCTTCGCG	1680
TCATCTCTGA	GATTTTCGTT	GACGTTATTC	GTGGTATTCC	ATTGATGATT	CTTGACAGCCT	1740
TCATCTTCTG	GGGAATTCCA	AACTTCATCG	AGTCTATCAC	AGGCCAACAA	AGCCCAATTA	1800
ACGACTTTGT	AGCTGGAACC	ATTGCCCTCT	CACTCAATGC	GGCTGCTTAT	ATCGCTGAAA	1860
TCGTTTCGTG	TGGTATTCAG	GCCGTTCCAG	TTGGCCAAAT	GGAAGCCAGC	CGAAGCTTGG	1920
GTATCTCTTA	TGAAAAAACC	ATGCGTAAGA	TTATCTTGCC	ACAAGCAACT	AAATTGATGT	1980
TGCCAAACTT	TGTCAACCAA	TTCGTTATCG	CTCTTAAAGA	TACAACTATC	GTATCTGCTA	2040
TCGGTTTGGT	TGAACTCTTC	CAAACTGGTA	AGATTATCAT	TGCTCGTAAC	TACCAAAGTT	2100
TCAAGATGTA	TGCAATCCTT	GCTATCTTCT	ATCTTGTAAT	TATCACACTT	TTGACTAGAC	2160
TAGCGAAACG	CTTAGAAAAG	AGGATTTCGT	AATGGCAAAA	TTAAAAATTG	ATGTAAATGA	2220
TTTACACAAG	CACTATGGAA	AAAATGAAGT	CCTAAAAGGA	ATTACGACTA	AGTTCTATGA	2280
AGGAGATGTT	GTTTGTATCA	TCGGTCCTTC	AGGTTCTGGT	AAGTCAACTT	TCCTCCGTAG	2340
CCTCAATCTT	TTAGAAGAAG	TCACTAGCGG	TCACATCACT	GTGAACGGCT	ATGATTTAAC	2400
TGAAAAAACA	ACCAATGTTG	ACCACGTCCG	TGAAAATATC	GGCATGGTAT	TCCAACACTT	2460
CAACCTCTTC	CCTCATATGT	CTGTATTGGA	CAACATCACC	TTTGCTCCTA	TTGAGCACAA	2520
GTTGATGACT	AAGGAAGAAG	CTGAGGAATT	GGGAATGCAG	TTGCTTGAAA	AGGTTGGACT	2580
AGCAGATAAA	GCTAATGCCA	ATCCAGATAG	CCTATCAGGT	GGTCAAAAAC	AACGTGTGGC	2640
CATCGCTCGT	GGCCTAGCAA	TGAATCCAGA	CATCATGCTC	TTCGATGAAC	CAACTTCTGC	2700
CCTTGACCCT	GAGATGGTTG	GAGACGTACT	TAACGTTATG	AAGGAATTGG	CTGAGCAAGG	2760
CATGACCATG	ATTATCGTAA	CCCATGAGAT	GGGATTTGCT	CGTCAGGTTG	CCAACCGCGT	2820
TATCTTTACT	GCAGATGGCG	AGTTCCTTGA	AGACGGAACA	CCTGACCAAA	TCTTTGATAA	2880
CCCACAACAC	CCTCGTCTGA	AAGAGTTCTT	AGATAAGGTC	TTAAACGTCT	AAACTCAAAC	2940
TGTAAGGATT	TCCTTGCACT	TTTCTACCT	CGTATTGGAA	TTTTTGATTT	TTCGGAAAAAT	3000
TATGTTAGAA	TTAAGTTTAT	GAAATGAGGT	TTCTCATAC	CTAGCAAGAC	TAGGAATAAA	3060
AATAGAAATT	AGGTAGCTAG	ATGTCATCTA	AGGTTATTGT	TACAATTTTC	GGTGCAGGTG	3120
GAGACCTGGC	TAAACGCAAG	CTCTACCCTT	CCCTTTTATG	ACTATATCAA	TCCGGCAATC	3180
TTTCCAAGCA	CTTTGCCGTT	ATTGGAACGT	CCCGTAGACC	TTGGAGTAAG	GAATATTTTG	3240
AATCTGTAGT	TGTCGAGTCC	ATCCTTGATT	TGGCAGATAG	TACCGAGCAA	GCCCAAGAAT	3300
TTGCTAGCCA	CTTCTACTAT	CAAAGCCATG	ATGTCAATGA	TTCGGAACAT	TATATTGCTT	3360

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TGCGTCAATT ACAAGCTGAG CTTAATGAAA AATACCAAGC TGAACACAAT AAGCTCTTCT	3420
TCTTGTCTAT GGCACCTCAG TTCTTTGGAA CCATTGCCAA ACACCTCAAA TCTGAAAACA	3480
TTGTCGATGG CAAAGGTTTT GAGCGCTTGA TCGTTGAAAA ACCATTTGGT ACAGATTACG	3540
CAACTGCAAG CAAGTTGAAT GACGAACTCC TAGCAACATT TGACGAAGAA CAAATTTTCC	3600
GTATCGACCA TTATCTTGGT AAGGAAATGA TCCAAAGCAT CTTTGCAATT CGCTTTGCAA	3660
ACTTGATTTT TGAAAACGTT TGGAAACAAGG ATTTTATCGA CAATGTTCAA ATTACCTTTG	3720
CGGAGCGCTT GGGTGTAGAA GAACGTGGTG GCTACTATGA CCAATCCGGT GCCCTCCGTG	3780
ACATGGTCCA AAACCACACT CTACAACCTT TTTCCGCTCCT CGCCATGGAC AAACCAGCAA	3840
GCTTCACAAA AGACGAGATT CGTGCTGAAA AGATTAAGGT CTTTAAAAAC CTCTATCATC	3900
CAACTGATGA AGAACTCAAA GAACACTTTA TCCGTGGGCA ATACCGCTCT GGTAAGATTG	3960
ATGGCATGAA ATACATCTCT TATCGTAGCG AGCCAAATGT GAATCCAGAA TCAACAACTG	4020
AAACCTTTAC ATCTGGTGCC TTCTTTGTAG ACAGCGATCG ATTCCGTGGT GTTCCTTTCT	4080
TTTTCCGTAC AGGTAAACGA CTGACTGAAA AAGGAACTCA TGTCAACATC GTCTTTAAAC	4140
AAATGGATTC TATCTTTGGA GAACCACTTG CTCCAAATAT TTGACCATC TATATTCAAC	4200
CAACAGAAGG CTTCTCTCTT AGCCTAAATG GGAAGCAAGT AGGAGAAGAA TTAACTTTGG	4260
CTCCTAACTC ACTTGATTAC CGTACAGATG CGACTGCAAC TGGTGCTTCT CCAGAACCAT	4320
ACGAAAAATT GATTTATGAT GTCCTAAATA ACAACTCAAC TAACTTTAGC CACTGGGATG	4380
AAGTTTGTGC GTCATGGAAG TTGATTGACC GTATTGAAAA GCTCTGGGCT GAAAAAGGTG	4440
CCCCACTTCA TGAATAAAA GCTGGAAGCA TGGGACCTCA AGCCAGCTTT GACCTACTTG	4500
AAAAATTCGG TGCCAAATGG ACTTGGCAAC CAGATATCAC CTATCGTCAA GATGGTCGCT	4560
TAGAATAAAA AAATTTCTCT CAAGTTTATG CcTTGCAGGA TTTTGTCTTC TGATTAGATT	4620
AAACCTTCCA AGAGACCTTT CATAAAGTTT TCTGAGTTAA ACTCTCCAAT ATCATCGATT	4680
TTTTACCAA AACCAATCAA TTTTACAGGA ATATTGAGTT CTTACGAAT GGCTAGAACC	4740
ACACCTCCTC GAGCAGTTCC ATCAATCTTA GTCAAAACAA TTCCCGTTAA AGGTGTGATT	4800
TTCGAAAAAT CTTTGGCCTG TACTAGGGCA TTTTGACCTG TTGATGCATC AAGTGCCAAG	4860
AAGGTTTCAT GTGGTGCTTC TGGCACAACA CGTTTGATAA TACGACCAAT CTTTCCAAAC	4920
TCAGCCATAA GGTATCCTT ATTTTGAGCA CGACCAGCAG TATCAATCAT GAGAATATCG	4980
ATACCTTCAG TCACGGCAGG TTCCATACCA TCAAAGACCA CGCTGGCTGG ATCAGCTTTT	5040
TCAGGTCCAG TTAATACTGG AACATCTACT CGTCGGCCCC ATTCAGCTAG CTGAGCTACT	5100

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GCACCCGCAC GGAAGGTATC TGCTGCAACC AGCATGACCT TCTTACCAGC TTGTTTGTAG	5160
CGGTGGGCTA GTTTTCCGAT AGAAGTTGTT TTCCCAACAC CATTACACACC AACAAAGAGC	5220
ATAACTGTCA AGTTATCTTG GAAGTGGATG CTTTCATCGT AGCTACCATC CTTTTCATAA	5280
AGCTCAACCA ATTTCTCAAT GATGACACGA CGAAGTACAT CAGGTTTCTT GGCATTTTCA	5340
AGCTTGGCTT CGTAACGTAG TTCCTCCGTT AAGTTAGAAG CGACTTGGAC ACCAACATCA	5400
CTCATAATCA GCAGTTCTTC CAGTTCCTCG AAAAATTCTT CGTCAACAGA GCGGAAGTTA	5460
GCAAAGAAGG CATTCAAGCG GGCACCGAAA CCTGTGCGAG TTTTCTTAAG ACTGCGGTCA	5520
TATTTTTCCT GAACAGTTTC TTCTGTTTGA GGAGCTTCTG GTTCAAGCAC TTCAGAATTA	5580
TTTTCTTCTA CAGTTCCTTC GTGCTCAAGC TTCTCTTCCT CTGGTAATTC TTCTGAGTTT	5640
GGTAATTCTT CTATTTCTTC TTGAGAAACC CCTACAGCTG GCTCTGAATC CTGACTTTCT	5700
TCAACTGTGT CTTGGATTTC CTCTTCTTGG AACACAGCTT GTTCAACAAT TTCAACCTCT	5760
GCTTCTTCCT GAGAACTTC CTCAACTTCT GTGAAGGTAG GATCAACATC TTCAGACAAA	5820
TCAAGATTTT CCAGAGCTTC TTTTACAAC TCTTCGATTT TAGGTTCTTC TTTTTTCCG	5880
AATAGACGGT CAAACAATCC CATATCTTAG TTCTCCTTTA GCACATATTC TTCGATAGCC	5940
CAGGCGACAG CTTCTCATC GTTGGTCATC GCGGTCATA CATTGCGGC TGCCTTTACT	6000
TCAGGAACAG CGTTTTGCAT AGCAACACCA AGACCTGCCC ATTCAATCAT AGAGAGGTCA	6060
TTGGCCTCGT CACCACAAGC CATCACTTGA CTTTGGTCGA TTCCAAGATG GCTGATTAGT	6120
TTTGCCAAAC CTGTTGCTTT ATGAACATTC TTTGGTGACC ATTCTAGCAA CATTTACAGT	6180
GATTTAAAGA TTTCATATTG GTCAAACAAT TCTGGAGAAA TCTTCTGAAT GGCTGCATCC	6240
AAGGGTTCTT GAGCAAAGGC AGTCACGCAT TTGTTGTAGG TCATTTGACT AGATAAGTCT	6300
TCAAAGTCCA CTGGAACAAA GGTCAAAGCT GGATTGAATT TGGCATAAAG ACTTTCTTGG	6360
TCCGATTGGA TTTGATAAAC TGTTCTTCTT GAGATGGCAT CAAGAGGCAG TGATAATTTT	6420
TCTGTTTCTT CATACAAACG TGCCACATCA TCATATGAAA AGACTGTTTT ATCAAGGATT	6480
TCTCCTGTAT TTTTCTGAAC TAATCCACCA TTAAGGTAA TGGTATACTC ATCTTCCTGA	6540
CCGTCAGTCC CTAATCATG GAGAAAGAAA TCCATGGCTT TTAAGGGACG ACCAGTTGTC	6600
AATACGACCT TGATACCAGC ATCACGCGCA gCTTGAAGG TTTCTTGGT ACGATCCGTC	6660
AGCCTTTTAT CAGTAGTCAG CAAGGTCCCG TCCAAGTCCA ATGCAATCAA TTTTATATCT	6720
GCCATTATAA GCCCTCCATA TAAGCTATAA CCGACCGTTC CTTATGGTGA CCAATCACAG	6780
TCTTTGCTAA TTCTAAAATT TCAGGTCGTG CATTTTCAGG AGCTACAGGA TGTCCACAA	6840
CCTGCATCAT ATGTAAGTCA TTAAGATTGT CTCCTAAAAGC CATGACCTGA TCCATTGTGA	6900



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TACCAAGTTT TTAACTAAT TCAACAATGG CCACTCCCTT ATCGACATAG TCCAGAACAA	6960
TATCAATGGA TTCAAAGCCA GTTGTCATGG CCTTAACACC AGGAACGTTT TCGTTTACCC	7020
AAGCCTCCCC ATCTTCCAGC GTTCTTCTG TGAAGTTGGT TGTAATTTG AAAATGTCAT	7080
CTGTGATATC TTCAAACCTC GCTACTTTTT GGATATTTTC ATTATAGTGC TGACTCACTT	7140
TCAAATAGGT CTCATCAACC GTATCTAGAA CATATGAACC CTTCTTACCC GTCAAGAGCA	7200
-----GTTTATTGAT ATCTACATAA GGTGAAGTTT TCAGCTTTTC AAAAGTTGCC AGATAAAAAGT	7260
CACGAGACAT AGTCGCTTCA TACAAGTCCT GACCTTGATA CTCTACCAA CTGCCATTTT	7320
CCGCGATGAA AATAATGTCA TCACGAACAC CAGCAAATAA TTTTCTAGA GACAGAAATC	7380
CCCGACCCGA AGCTACCGCA AAGTAAATCC CTTTTCTCTT GTAGGAAACC AAGAGAGACT	7440
TGAGACGATC CATATCAAAG CGTCCATTCC CATCTAGGAA GGTTCCTGCC ATATCCGTTG	7500
CTACTAGTTT AATTGTCATC CTTCAATACT TTCTAAATCT TTTAACTTAA CTGAAACAAT	7560
CTTTGAAACA CCCGATTCTT GCATGGTCAC TCCATAGATG GAATCAGCCG CTGCCATGGT	7620
TCCCTTACGG TGGGTTACGA CGATGAACTG GCTGTCCTTG TCAAAGCGGT TGAGGTAATC	7680
CCCCAAACGT TTAACATTGG CTTTCATCCAG CGCAGCTTCC ACCTCATCCA AGATAACAA	7740
TGGAATAGTC TTGACACGAA TAATGGAGAA GAGCAAGGCA AGAGCCGATA GGGCTTTTTT	7800
ACCACCACTC ATGAGATTAA GAGACTGGAT TTTCTTGCCT GGTGGTTGGA CAGAAATTTT	7860
AACCCAGCT GTCAGCAAGT CTCCTTCAGT CAAAATGAGG TCAGCCTGAC CTCCACCAA	7920
CATCTGCTTG AAGGTCATT TAAAGGACTC ACGAATGACC TCAAAGGTTG ATTTAAAGCG	7980
TTCTTGACC TCATCATTC TCTCTGTAAT GGTCTCAAGG AGCAGGTTTT TCGCAGACAA	8040
AATATCATCA CGTTGGCTAT TTAGGAAATC CAGACGGTTG TGAACCTTCT CGTACTGTTT	8100
AATAGCGTCT AAATTGACAG GACCCAGTGA GCGTATAGCC TTCTCTAAAT CCTTAACTTC	8160
TTGCTCTGCC AGATTGAGAT TTTCCAACTC ATGCGCCTTT TCTAAAGCTT CTGTGTAGCT	8220
GATCTGGTAC TGGTCTGTTA ATTGACTTTG TAGATGGCGC AAGCGCTCGC TAACCTTTTC	8280
TTTCTTGGCT TCAGCACGAG TTTGCTTGGC AATCCACTCT TCATTCTGCT GGCGAGCCTG	8340
ATCCAAATGA CTAGCAATAT CATCCAGTTG ACCCTCAATA TCATCCAACCT CAAACTGCTT	8400
GCGAATCAAA CCTTGTGGA GATTTGTTTT TTGAGTTTTG GATTCTTCCG CCTGTTGACT	8460
GAGCAATTCT GTATCAACCT TCTCAAGATT ATCAATCTTT TCTTGAAGAA GCGGCTGGAT	8520
TTCTCTTGT TCAAAATCAA GATTGTCCAA TTCCTTGCTT AAGCGTTCAA TATCAGCAAC	8580
TTCATAACGT TTTTGCCCTT GCAGTTCTGT CTTAAGCAAA CGAGCTTGCG CTAGCTCTTC	8640

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CTGCAAGTTT TGATAGCGTT CTTGGATGGC ATTTTGTGTA GACTTAATCT CTTCAATCTC	8700
AGCTTCCAGA TTTTGCTTGT CACTGGAGAT TGCAGCAAGA CGCTCTTGGC AGTTTTCCTT	8750
ATCCGCTTGC CAATCTCCCT CGGAAAGACG ATCTATTTCC TCTTCTTGGG GTTTCCAAAG	8820
AGTTTCCAGT TCTTCAACTT GCTGACTAGT TTGCTGATAA GCGAGGAACA AGCCTTGCTC	8880
CTGAATACGT GCCTGCTCTC CTTGAGATT T AATAGCTTCT AATGACTCGG TCAATCTGGC	8940
CATCTCATCT TGCAAGGTCT TCAAAGTCGC CTCTTCTGAA CCCAAGCTTG CTTCTTCTTC	9000
AGCAATTTCT TTTTGTAATT GCTCCAGTTC TGGCTTGATA AAAATGCTGT TATTCTGGCG	9060
ATTGGCACCA CCTGCATAAG AACCACCTGT GCGCAACTCT GTCCCATCCA ATGTCACCAT	9120
ACGAACCTGA TAACGAACTT GCGGAGCTGC TGCACGCGCA TGTCTACGG TATCAAAGAT	9180
AGCCGTCGTA GCTAGCAAGT TCTTGAAAAT GGCTTCCAGT CTAGTATCAA AAGTCACCAA	9240
CTCATCTGCC ATCCCAAGGA AACCTGGGCT TACAGCGATA GCATCTTGGT TCTGACTAGA	9300
AATCGTACGC GCCTTGATAG TGGTCAAAGG AAGAAAGGTT GCACGACCGG CTCTGTTCCG	9360
TTTAAGGAAG TCAATAGCCT TGGTTGCCGA CTCTTCATCT TCTACGATGA TATGCTGGCT	9420
ACTTGCCCCCT AAGGCAATCT CTAGGGCAGT TTGATAATAA ACATCAAAGG TCAGATGCTC	9480
ACTGACTGCA CCAATAATCC CACCTAGGCG ATCTTTTTCT TGGAGAACAC TCTTAACACC	9540
TGCATAAAAG TTACTATGAT TTCTCAGGAT ATTTTCCAAA CTTTGAGCTC TGGCCTGCTT	9600
GTTTTTGAGA TTATCCAGAC GGTCAAAGAG TTGGCTTTGT TGAGCTTGAT AGGAAGTTT	9660
CTGCTCCTCT TGCTCCTTGG CAATAGCTTG GTAGTCAGCC AATAATTTCT GAACCTGCTC	9720
CTTGGCACTT TCAAGCTCTT CTTTTTGCTG ACTAGCCTTC TCTTTAGCTA TAGCTAATTG	9780
CTCTTTCAGC TTTTCTAGTT GATCTGCTTG TTTTGTAGAA AGCTGACGAC TATTTTCCAA	9840
CTCATTCTCA ATACGGGTCA ACTGGTTTGA GACATCCGCT TCTTCTTGTA AAAGAGCTAC	9900
AAAGCGTTCA CGTAAGAGCT CAATCATCTG ATCAGGATCG TCTGAGAAAG CCAGCAATTC	9960
AGCTTCTAAA CGATTGAGTT TTTGATTATT TTGGACTAGA TTTCCCTCTA ACAGAGCTAA	10020
AGAGCTTTCT TTATCAGACT TTTCTTTGCT GAGTGAATTT CTCTTATCCT CCAAAGCAGC	10080
CAAACGGGCT TGTGCCTCCT GTTGATTCAA GGCCACTTGC TCGGACTCCA GTTTCGATAG	10140
GGCTAATTTT CTTTCTAAAT CACTAATCAG ACTAGTCAAG TCCATCAAAC TGCCTTGGTC	10200
TTTGGCCATT TCAGCCTGTA AATCTTGGCG TTGCTTTTGA AGAGTTTGAT TTTCTTCTTC	10260
TAATTTTTC ACGTTTTGGT AATAACTCAT CAAGAGTTCT TGAACCTGAG TCAACTCTTC	10320
TTCTGTCGAC TCTAGTTCAG CTTATTTTTC CTTGATTTGA GCAACCAGAA CATCTAAATA	10380
AATAGCCTTA CGTTGTCCTT CCAAGTCTAA AAACCTTACGG GCATTCTCAG CTTGCTTCTC	10440

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AAGAGGCTTG	ATTTGATTAT	CCAACTCGTA	GATAATGTCC	TCTAAGCGGT	CCAGATTATC	10500
CTGAGTTTGC	TGCAGTTTAC	TCTCGGTTTC	TTTTCTGCGA	GTCTTGTATT	TTAAAACTCC	10560
AGCAGCTTCT	TCAAAAATAG	CTCGTCGTTC	CTCAGGCTTG	GAATTAAAAA	TCTCCTCAAC	10620
CTTCCCTTGG	GAAATAATAG	AGAAGGAATC	TCGTCCCAAT	CCAGTATCCA	AGAAGAGGTC	10680
ATGAATATCA	CGCAGACGGA	CTTCTTGCC	GTCAATCTTG	TATTCGCTAT	CTCCACTACG	10740
ATAGACATGG	CGTTCACCC	TGATTTCTTG	ACCTGCATCC	TTGATAAATC	CGTCATGATT	10800
ATCCAGAGTC	ACAACTACAG	AAGCATAATT	GAGCGGTTTG	CGACTTTTCG	TTCCAGCAAA	10860
GATGATATCC	GGCATCTTGC	CCCCACGGAG	ACTCTTGACA	CTAGACTCCC	CCAAAGCCCCA	10920
ACGCAGACTT	TCTGTAATAT	TGGACTTTCC	AGATCCATTG	GGTCCAACAA	CTGCCGTCAC	10980
ACCTTGGTCA	AAAACGACCT	TGGTCTTATC	AGCAAAAGAC	TTGAACCCCT	GAATTTTCGAT	11040
TTCTTTTAAA	TACATGAATC	CAGCCCCTTC	TCAACGGCAT	TTTTGGCAGC	TTCTTGCTCT	11100
GCTAATTTCT	TAGAACGACC	TTGGCCTTGA	CCGATGCTCT	TACCTTCAAC	AAGAACTTCT	11160
ACATCAAAAA	CCTTATCGTG	AGCAGGCCCT	GTTTCAGAAA	TCACCTGATA	ACGAATAGCC	11220
ACATCACCAT	TGACCTGAAG	CAACTCTTGG	AGATGGGTTT	TATAGTCTGT	AATCATCTCA	11280
AACTCGCCTG	CTTCAACCTT	AGGAATCATG	ACTTGATAGA	TAAATTCCTT	GACCTTGGCC	11340
ACATCCTTAT	CCAAAAGAAG	GGCACCAAGA	AAGGCTTCAA	AGGCATCACC	AAGAATGGTG	11400
TCACGATTGC	GACCACCTGA	TTTTTCTTCC	CCTTTACCCA	ACTTGATAAA	CTGGTCAAAC	11460
TGGCAATCAC	GCGCAAAACC	AGCTAAACTC	TCCTCACGGA	CAATCATAGC	ACGGAGTTTT	11520
GATAGGTCAC	CTTCAGGCTT	TTTAGGATAT	TTTTTATATA	GATATTCTGA	AATCAATAAC	11580
TGTAGAACAG	CGTCTCCTAA	AAATTCCAAG	CGTTCATTGT	GTGAAATTTT	TAAGAGGCGG	11640
TGCTCATTTG	CATAACTCGT	ATGAGTAAAG	GCAGTTTCCA	GTAACCTTTT	GTCTGCAAAT	11700
TCGATTGCAA	AATGATTCTT	TAGTACAGTT	TGTAATTCTT	TCATACCAAC	CTCTTTCTAA	11760
CTGATAATAG	TCCTTTTTAT	TATATCAAAA	AAAGCCCCCT	GAGTCACTCT	AAAACGGGAC	11820
TGGAAAGCAT	TTGGGAATTC	TTTAGACAGA	GATTCTCAGT	TTTAGCGGCA	AATTTGGGTC	11880
AGGATAAAGA	AAAAAGCCCT	ATTAAAGGCT	TTTTAGGATG	TTTACATCCA	CCCTGAGGGA	11940
ATCGAACCCC	CATCTCAAGA	ACCGGAATCT	TACGTGATAT	CCATTACACT	AAGGGTGGAA	12000
ACTTGTTTTA	TTATAACAGA	AATTTGCTCT	AATAACAAGT	TTTTTGGTCA	AAGACCCCGT	12060
CTTAGTGGGA	AGCATCCCCA	TTCCAGATGG	AGTTTTTCAC	GATCACATAA	TCAACGTGTT	12120
TAAGGTCAGC	AACCTGACGT	CCACCTGCAT	AAGAAATAGC	ACTTTGAAGG	TCTTGTTCCT	12180

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TCTCAGTTAA AGTGTCTTGC AGATGACCTT TAGCAGGAAG CAAGATACGT TTGCCTTCCA	12240
CATTTTGTGA AGCACCTTTT TGATATTGTG AGGCTGAACC ATAATATTCT TTGAACTGTT	12300
CACCATCGAC TTCAATCGTT TTCCCTGGAC TTTCAATGTG TCCTGCAAAG AGGGAACCAA	12360
TCATGATCAT GCTAGCACCG AAGCGGATAG ACTTAGCAAT ATCACCGTGA GTACGAATTC	12420
CTCCATCAGC GATAATCGGT TTACGCGCAG CCTTGGCACA CCAGCGTAGA GCAGCCAACT	12480
GCCAACCACC TGTACCAAAA CCAGTCTTAA CCTTGGTGAT ACAAACCTTA CCAGGACCGA	12540
TTCCGACCTT AGTAGCATCC GCACCAGCAT TTCCAATTC ACGCACAGCT TCTGGTGTTC	12600
CCACATTTCC AGCAATGACA AAGGTATCTG GCAATTCTTT CTGATGTGT TGAATCATAG	12660
AAATCACGCT ATCCGCATGA CCATGAGCAA TATCAATAGT GATATACTCA GGAGTATCAG	12720
CCTTGAGCTG GCTAACAAAA TCATACTCAT AATCCTTAAC ACCGACAGAG ATAGAAGCAA	12780
TGAGCCCTTG ATTGTGCATT CGTTTAATAA AAGGAATGCG TCCTGCCTCA TCAAAACGGT	12840
GCATAATGTA GAAGTAACCA CCTTTAGCCA GTTGCTCTGC TACATTTTCA TCCAAAATCG	12900
TCTGCATATT CGCTGGCACA ACAGGTAGTT TAAAGGTGTG ATTCCTAAA GTGACACTTG	12960
TATCCGCTTC TGCACGGCTT TTAATGACAC ATTTATTGG AATCAATTGA ATATCTTCGT	13020
AATCAAAAAT TGGAAATTC TTTAACATAT CGATGTCTCG TTTCTTTTGT AATGACCTAC	13080
CTATGCTCTT GCATCACTAC GCCTTTTCCG ACGTTTCCTG G	13121

(2) INFORMATION FOR SEQ ID NO: 127:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 9578 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 127:

CCGAATGCAA TGTTTACGGT TGAAGTTGAA AATGGACATC AGATTTTAGC AACAGTTTCT	60
GGTAAAATTC GTAAAACTA TATTCGTATT TTAGCGGGAG ATCGTGTTAC TGTGAAATG	120
AGTCCATATG ACTTGACACG TGGACGTATC ACTTACCGCT TTAAATAATC GAAAAACTTG	180
GAGGGATAAG AAATGAAAGT AAGACCATCG GTCAAACCAA TTTGCGAATA CTGTAAAGTT	240
ATTCGTCGTA ATGGTCGTGT TATGGTAATT TGCCAGCAA ATCCAAAACA CAAACAACGT	300
CAAGGATAAG ATAGAAAGGA GAAACATGG CTCGTATTGC TGGAGTTGAT ATTCCAAATG	360
ACAAACGCGT AGTAATCTCA TTGACTTATG TTTATGGTAT CGGACTTGCA ACATCTAAGA	420
AAATTTTGGC TGCTGCTGGA ATCTCAGAAG ATGTTCTGTG ACGTGATCTT ACATCAGATC	480

877

AAGAAGATGC TATCCGTCGT GAAGTGGATG CAATCAAAGT TGAAGGTGAC CTCGTCGTG	540
AAGTAAACTT GAACATCAAA CGTTTGATGG AAATCGGTTC ATACCGTGGT ATCCGTCACC	600
GTCGTGGACT TCCTGTCCGT GGACAAAACA CTA AAAACAA CGCCCGCACT CGTAAAGGTA	660
AAGCTGTTGC GATTGCTGGT AAGAAAAAT AATATAGGAG GTAAAAGTCT TGGCTAAACC	720
AACACGTAAA CGTCGTGTGA AAAAGAATAT CGAATCTGGT ATTGCTCATA TTCACGCTAC	780
ATTTAATAAC ACTATTGTTA TGATTACTGA TGTGCATGGT AATGCAATTG CTTGGTCATC	840
AGCTGGTGCT CTTGGTTTCA AAGGTTCTCG TAAATCTACA CCATTCGCTG CTCAAATGGC	900
TTCTGAAGCT GCTGCTAAAT CTGCACAAGA ACACGGTCTT AAATCAGTTG AAGTTACTGT	960
AAAAGGTCCA GGTTCGTGGT GTGAGTCAGC TATTCGTGCG CTTGTGCGCG CTGGTCTTGA	1020
AGTAACAGCA ATTCGTGATG TGACTCCAGT GCCACACAAT GGTGCTCGTC CTCCAAAACG	1080
TCGCCGTGTA TAATCATCGC ATTACACTGC TTTTCGTTTA AGAGGGAGTA ACTAAATGAT	1140
CGAGTTTGAA AAACCAAATA TAACAAAAT TGATGAAAAT AAAGATTATG GCAAGTTTGT	1200
AATCGAACCA CTTGAACGTG GCTACGGTAC AACTCTTGGT AACTCTCTTC GTCGTGTACT	1260
TCTAGCTTCT CTACCAGGAG CAGCTGTGAC ATCTATCAAC ATTGATGGTG TGTTACATGA	1320
GTTTGACACA GTTCCAGGTG TTCGTGAAGA CGTGATGCAA ATCATTCTGA ACATTAAAGG	1380
AATTGCAGTG AAATCGTAGG TTGAAGACGA AAAATCATC GAACTGGATG TTGAAGGTCC	1440
TGCTGAAGTA ACAGCTGGTG ACATTTTGAC AGATAGCGAT ATTGAAATTG TAAATCCAGA	1500
TCATTATCTC TTTACAATCG GTGAAGGTTT TTCTCTAAAA GCGACTATGA CTGTTAACAG	1560
TGGTCGTGGA TATGTACCTG CTGATGAAAA TAAAAAGGAT AATGCACCAG TTGGAACACT	1620
TGCTGTAGAT TCTATTTATA CACCAGTTAC AAAAGTCAAC TATCAAGTGG AACCTGCTCG	1680
TGTAGGTAGC AATGATGGTT TCGACAAAT AACCCTTGAA ATCTTGACAA ATGGAACAAT	1740
TATTCCAGAA GATGCTTTAG GGCTTTCAGC ACGTATTTTG ACAGAACATC TTCATTTGTT	1800
TACAAATCTT ACTGAGATTG CTAAGTCAAC TGAAGTGATG AAAGAAGCTG ATACTGAATC	1860
TGACGACCGT ATTTTAGATC GTACGATTGA GGAAGTGGAC TTGTCTGTGC GTTCATACAA	1920
CTGTTTAAAA CGTGCCCGTA TCAATACTGT GCATGATTG ACAGAAAAAT CTGAAGCAGA	1980
GATGATGAAA GTACGAAATC TTGGACGCAA GACTTTGGAA GAAGTGAAAC TCAAACATCAT	2040
TGATTTGGGT CTTGGATTAA AAGATAAATA AAGGAGGAAT ACATGGCTTA CCGTAAACTA	2100
GGACGCACTA GCTCACAACG TAAAGCAATG CTTCCGATT TGACAACTGA CCTTTTGATC	2160
AACGAATCAA TCGTGACAAC TGAAGCTCGT GCTAAAGAAA TCCGTAAAAC TGTGAAAAA	2220

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ATGATTACTC TAGGTAAACG TGGTGATTTG CATGCACGTC GTCAAGCAGC TGCTTTCGTA	2280
CGTAATGAAA TCGCATCTGA AAACATATGAT GAAGCAACTG ATAAGTACAC TTCTACTACA	2340
GCACTTCAAA AATTGTTCTC AGAAATCGCA CCTCGTTATG CTGAACGTAA CCGTGGATAC	2400
ACTCGTATCC TTAAACTGA ATCACGTCGT GGTGATGCAG CGCCAATGGC GATCATCGAA	2460
TTAGTATAAA ATCATCAATT TTGTTGAGTG TTATGATGAT GGAGTCTTGT GCTCTTAGTC	2520
TAGCTCTGGT CTACCGCTAG GATTTCCGGTC CTAGCGGGAA CACTCATCAT AAGTTGGGAT	2580
AGTAGACGCT TGTTTACGAA ATTGTTTTTT TCTTAAGAAC AACTTCGTAA GCAGGCGTTT	2640
TTGAGTATTT TCGTTAGAAT TATGCTATAC TATTTGAAAA GAATCCTGTT TAATGTTAAG	2700
GTTTCTTATT TTAAGAAGAA TTGGAGTTTA CTTATGAAAG CCATTATAAC TGTGTTGGT	2760
AAAGATAAAT CTGGAATTGT TGCAGGTGTT TCTGGTAAAA TTGCAGAATT AGGATTGAAT	2820
ATTGACGATA TCTCTCAAAC TGTCTTGGAT GAATATTTTA CGATGATGGC TGTGTATCT	2880
AGTGATGAAA AGCAAGATTT TACCTATCTT CGTAATGAAT TTGAAGCTTT TGGGCAAACT	2940
TTGAATGTAA AAATCAATAT TCAGAGTGCA GCGATTTTCG AAGCTATGTA TAATATCTAG	3000
GAGGTCATCA TGGATATTAG ACAAGTTACT GAAACCATCG CCATGATTGA GGAGCAAAAC	3060
TTCGATATTA GAACCATTAC CATGGGGATT TCTCTTTTGG ACTGTATCGA TCCAGATATC	3120
AATCGTGCTG CGGAGAAAAT CTATCAAAAA ATTACGACAA AGGCGGCTAA TTTAGTAGCT	3180
GTTGGTGATG AAATGCGGC TGAGTTGGGA ATTCCTATCG TTAATAAGCG TGTATCGGTG	3240
ACACCTATTT CTCTGATTGG GGCAGCGACA GATGCGACGG ACTACGTGGT TCTGGCAAAA	3300
GCGCTTGATA AGGCTGCGAA AGAGATTGGT GTGGACTTTA TTGGTGGTTT TTCTGCCTTA	3360
GTACAAAAAG GTTATCAAAA GGGAGATGAG ATTCTCATCA ATTCCATTCC TCGCGCTTTG	3420
GCTGAGACGG ATAAGGCTCG CTCGTCAGTC AATATCGGCT CAACCAAGTC TGGTATTAAT	3480
ATGACGGCTG TGGCAGATAT GGGACGAATT ATCAAGGAAA CAGCAAATCT TTCAGATATG	3540
GGAGTGGCCA AGTTGGTTGT ATTCGCTAAT GCTGTTGAGG ACAATCCATT TATGGCGGGT	3600
GCCTTTCATG GTGTTGGGGA AGCAGATGTT ATCATCAATG TCGGAGTTTC TGGTCTGGT	3660
GTTGTGAAAC GTGCTTTGGA AAAAGTTCGT GGACAGAGCT TTGATGTAGT AGCCGAAACA	3720
GTTAAGAAAA CTGCCTTTAA AATCACTCGT ATCGGTCAAT TGGTTGGTCA AATGGCCAGT	3780
GAGAGACTGG GTGTGGAGTT TGGTATTGTG GACTTGAGTT TGGCACCAAC CCCTGCGGTT	3840
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ACGACGGCTG CCTTGGCCCT CTTGAACGAC CAAGTTAAAA AGGTTGGAGT GATGGCCTGC	3960
AACCAAGTCG GTGGTTTATC TGGTGCCTTT ATCCCTGTTT CTGAGGATGA AGGAATGATT	4020

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GCTGCAGTGC AAAATGGCTC TCTTAATTTA GAAAACTAG AAGCTATGAC GGCTATCTGT	4080
TCTGTTGGAT TGGATATGAT TGCCATCCCA GAAGATACGC CTGCTGAAAC TATTGCGGCT	4140
ATGATTGCGG ATGAAGCAGC AATCGGTGTT ATCAACATGA AAACAACAGC TGTCGTATC	4200
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GTATGAAGG TTAATGGGGC TTCGTCTGTC GACTTCATCT CTCGCGGTGG ACAAATCCCA	4320
GCACCAATTC ATAGTTTTAA AAATTAAGAA AATAGGAGAA ATTTTAAGTT CTATTTAAGA	4380
TTAGACGTGT ATACTATAAT CATTAAATAA AGACCTCCTA ATATTATTG AACAGATAA	4440
CACTGAATTA GTTGAATTT GATTTTCATC TAATATCTTT ATTTAATGAA CTCCTAACT	4500
TTTTCATAAT AATCTCCTTC AAAAGTCGCC TGTATGGGTG GCTTTTATTT TATCATTCAT	4560
GATATAATAG AAGCAAACGG AGGACGGAAG ATGGTAAAAG TACGATTGTA TTTGGTACGT	4620
CATGGCAAGA CCATGTTTAA CACGATTGGT CGCGCGCAAG GTTGGAGCGA TACTCCCTTA	4680
ACTGCTGAAG GTGAACGAGG GATTCAAGAG TTAGGAATCG GTTTGCGAGA ATCTGATCTA	4740
CAGTTTGAGC GTGCTTATTC GAGTGATTCT GGTCTACCA TTCAGACCAT GGAATTATC	4800
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TGGTGTTCG GTAGTTTGA TGGAGCCTAT GATGGCGATC TTTTCATGGG CATTATTCCT	4920
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GTAGAGGTCG ATACAGCTGG TTGGGCTGAA GGCTGGGAAA AACTCAGTGG CCGAATCAAG	5040
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GTTGTGCGTG ACCGTAGTTA CCGAGAGCTA GGACGTGAGA AGATGGAAGA AGGCTCTATT	5280
TAATCAGTCT AGACTTGCTT GCCATGAGCT AGGGATTGA TAAGAATATC AAGATAAGAA	5340
AAACAGCCG AGGGCACTCC TTTCGGCTGT TTTTGATGTG GAAAACTAAA GTGTAATGCT	5400
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AGTTGACAAG GTTGCGGCTA CACCGTAATT TCCTCTGAGA ACCTCTGTAT AAATAGCTAC	5520
AGTCATTGTT CTTGTTTTGA CATTGTAGAG GAGGATAGAA GTAGAGAGTT TTGAAATCAT	5580
TGTGACTCAA GATAAGATGG CTCCAGAAAT GATACCAGAT AGCATCATG GAGTTGTAAT	5640
CTTAGCAAAG GTATTGAGAC GACTACTTCC TAAGCTTTCA GCAGCTTCTT CAATACTTGG	5700
TGCTATTTGT TGTAAGCTAG CAACAGATGA CGGAATAGTA TAAGGTAATC TTCTGGCAGA	5760

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TAGAGACATA ATCAAGATGA AAGCAGTCCC TGTAATCATA AGAAATCCAC TTCCAAATAG	5820
ACCAGTATTG AAGGAAGAAA TGAAGGCAAT CCCTAGAACG GTTCCTGGTA CAATATAAGG	5880
TACCATACTG AGGCTGTCAA TTAAGTTTGT AAACAAATTC CGTTTTCTAA CGGCTAGGTA	5940
GGAGATAAAT GTCGCAAATA GAACAAC TAG AACTAAGGCA ATCAAAGGGA TACGAATGGT	6000
ATTGAAAATA GCAGATCCCA TACGATGGAA AGCTACCTTG TAACTGTTTG GAGAATAACC	6060
TTTAACAGAT ACCATACCTG ATGTTTTTAG GAAAGAGGTA TAAATTAAGT AGATTTGAGG	6120
TAAACAGAG ATAAAGATAA TTCCGTAGAC TGTGTCATAA ATGGCAGCCA TTTTTCCTTT	6180
TGTAGTTTTT TTAGGCTCAA TTGGATGGAG CAGATTCTAG CTGAAACTGT AGCGGTTTGC	6240
AATGTGTTTT TGGATAAGGA AAATTGCCAA GGCAATGATA ATCGCCATAA TTGCAAAAGC	6300
AGAATTTCTT CCAACCTCGC TAATAAATTG GGTATAAATC AGGACAGGGA AAGTCCGATA	6360
CCCTTCGCCA ATCAACATAG GCGTTCCAAA GTCTGAGAAT GCTCTCATAA ATACAAGCAA	6420
GGAGCTGCTA GTAAGGTTGG AACTAGGAGA GGTAAACAA CCGTTACGAT AGGTTTAAAT	6480
CCGAAGGACC CCATGCTTTC AGCTGCTTCA AGTAGAGAAT TGTCAATACT GTTCATTGTT	6540
CCAGCAACAT ATAGAAATAC CAGTGGGAAT AGTTGCAGTG TAAAGACAAG TACAATTCCT	6600
TTGAATCAAT AAATATCGAT AGCTGGAAGA TAAAGGGCAT TTGTCAAAA TTTAGTGATC	6660
ACCTCATTTT GTCCTAGCAA GAGAACCAG GAGTAGGCTC CTACGAAAGG AGCTGACATG	6720
GAAGCAATGA TAATCAATAT TTGTAGAAAT TTCTTCCCCT TGAAGTCATA CATAGAGAAG	6780
AGATAAGCTA ATAGGGTTCC TACAAC TAAG GAAGTGATAG TAGCGGTAAT GGAAACCTTC	6840
AAACTGTTGA CTAGTGTCTC AGAGTAGTAG GCTTTACTAA AGAAAGTGAC AAAATTAGCT	6900
AGTGAGAATT GTCCTTCATG TATAAGTGCT TGCTTGAGCA CGGTAACGAT AGGATAAACC	6960
AGAAAGATAG GATAGGTAAG AAAGAGGAAG AAAGAGGAAA CTGTCCAAAT ATTTAGTTTT	7020
TTACGTTCCA TGGTTGACTC CTTTTATCAG GTTTTGGGAA CCATCTGCAG AAAAGATGTT	7080
TAATTTTTGC GTATTGATTC GTAGACGAAT ACGATTGCCT TTTTGTAGAT CTTCTTCAAA	7140
AGTTGATTCT TCACTAATT GAATTTTTGA GGCAAAACCT GTCTCAATGA AATAATCCGT	7200
ATTTAGTCCA AGATAGACGC TATCTCTAAT AGTTCCCTCA ATATCTCCAG ATTCATCTTT	7260
GATAAACTCT TCGGGACGAA TGCTTACATG AATAGCTTGC TCCTCAACCT GATCAAGAGC	7320
TGGCATTCTGA AGGGCATAGC CATCTGAAAA GACCATATAA GCGCCGTCGC TCCGTTTTTC	7380
AAGATTGGCA GGGATAATAT TTGTGCGTCC GATAAAGGTT GCCACAACT CATTAGCTGG	7440
TTTATGATAG AGTTCTTTTG GTCGGCCGAT TTGTTGGATC ACCCATCTT TCATAACAGC	7500
AATTTGGTCT GAAATAGCCA TGGCTTCTTC TTGGTCGTGG GTTACATAAA CAGTTGTAAT	7560



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TCCCACCTTCG TGTTGGATTT CTCGGATGGC TTGACGCATA TCCAAGCGAA GTTTGGCCTC	7620
CAGATTACTA AGTGGCTCGT CCATGAGGAG AACACTTGGA TTAACCGCTA AGGCGCATGC	7680
CAAGGTGACA CGTTGTTGTT GTCCACCACT GAGTTTATCG GGCTTTCGAT CCGCATATTG	7740
AGCAATTTGC ATGAGTTCAA GATACTTGTT GGTCTGTTGA ATCAATTCTT CTTTGGAAAC	7800
CTTCTTTTGC ATAAGACCAA AAGCAACGTT GTCTCGGACA GTCAAATGTG GGAAAAATAGC	7860
GTAGTTTGG AAAACCATCC CGATATTGCG TTTGCTGGGT TCCATATTAT TGATTTTGT	7920
ATCATCGAAG TAAATTCCTC CACCTTCGAT ACTGTTGAAA CCTGCAATCA TACGAAGAAG	7980
GGTCGTTTTT CCACATCCTG AAGCTCCAAG AAGGGTAAAG AGACTTCCTT TTGGAATTGT	8040
AATGTTCAAA TTCTCAATAA CAGGGACATC GTGGTAGATT TTTTGGCGT TAATAATTTT	8100
GATCTCACTC ATAGTGAACC TCTTTTACTG TTTAGATTGG ATATCTGTAA AGACTTCGTT	8160
GTATTTCTTA ACGATATCTG ATTTATTCTT GATGACATAA TCATAATCTT CAGTGAGTGT	8220
TTTGATTTTG TCAATTGGTT TCATGTTTTC GCTTGTTTGA GCATTTTAC GAACAGGACG	8280
GTTAGTAGTG GTTGATACAA GTGTATCTTG TACTTCTTGA GAGATAATAA AATCGATAAA	8340
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GACGGTTCCT TCTTTTGGAT AGACTACCTT AATGTTAGCT CCGTCATTTA AGAGTTTAAC	8460
TGCTGGATCT TCATAAGAGA GACCAACAGC CATTTCTCCA TCAGCGACTA CTTTATAGAC	8520
ACTAGATGAA CTTGAACCGA TTTTACCATC AATAAGTGTG AAAAGATCTT TTACATAAGA	8580
CCAAGCCTTA TCATCTTGT AACCACCTTG AGCTTGTAGC ATATTTGTGA ATTGAGCAAA	8640
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ATAAGAACCA CCAAAGATAA CATCAGCTAC AGGAACTTCT TTTTCTGACT CTAGTTTTTT	8940
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GGCAGGAATA GTTGCTCCAA TTAAGCCCTC TGAGTTTGGT GAATAAACGA CTAGCGAACC	9060
GCCGTCTCCT TTATCAGATG AACTGTCATC GGCAGATTCA TTAGAAGAAC AAGCAGCATA	9120
ATACATCCAT TTCTTTTCA TGATGGATAC CTCCGTTGTG TTATTTAAGT TTATTTTAAA	9180
ACAATGTAAG CGTTTTTAAA ACATACAATT CTATTCTATA GTGTATTGAA TCTATAACAG	9240
TACACTTTGA CTGCTAAAAT ATTTCTATAA ATTAATTTGA CTTTCCTGAT AGAGATGTTT	9300

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ACATCTTATT TCAATTCAC T ATATTAGAGT AAAATTCTCT AAAAAAGAA GAATAGCCTA	9360
TTTTACTATT CTTCTGAGTG ATTTCAATTC CTTTGGGGAA ATATGGAGAT ACTTTTAA	9420
TCCTGACAAA TGGTTGTTTC TTTTCTAAA TCGGTGATAC TGTATCGGAG AATGCGCGTG	9480
AGGTCACAAA GGCTGCGATA GAGCTTCTAT GGAGAATTTC TTTTGGAGA GATTTTAA	9540
AGGAATGAGA CATCCGCTAC CTCCTTGAA GGTTTTG	9578

## (2) INFORMATION FOR SEQ ID NO: 128:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 13440 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 128:

CGGGCTGTTG TGACGATTCT TATTTCTATC TGTGTTATCT TTTTGGGAAC TATTTTGGGT	60
GTTGTCTTGG CTTTGGGCA ACGTTCAAAG TTAAACCGC TTGTTTGGTT GGCCAAC TTG	120
TACGTTTGGG TTTTCCGTGG GACACCGATG ATGGTTCAAA TTATGATTGC CTTTGCTCTT	180
ATGCATATCA ATGCTCCGAC TATTCAGATT GGAATTTTAG GTGTTGATTT TTCGCGTCTG	240
ATTCCAGGGA TTTTGATTAT CTCTATGAAT ACTGGTGCTT ATGTTTCGGA GACTGTTCTG	300
GCCGGAATCA ATGCGGTTCC AAAAGGTCAG CTAGAAGCGG CTTATTCGCT AGGGATTCTG	360
CCTAAAAATG CGATGCGTTA TGTGATTTTG CCACAAGCAG TCAAAAATAT CTGCGCAGCA	420
TTGGGGAACG AATTATCAC CATTATCAAG GACAGCTCCC TCTTATCAGC TATTGGGGTC	480
ATGGAGTTGT GGAATGGGGC TACAACAGTT TCTACAACAA CCTATCTACC TTAAACACCA	540
CTTTTATTTG CAGCATTTTA CTACTTGATT ATGACCTCTA TTCTGACAGT AGCCTTGAAA	600
GCTTTTGAAA AACATATGGG ACAAGGAGAT AAGAAATAAT GACAGAAACC TTGATAAAAA	660
TTGAAAATTT ACATAAATCC TTTGGAAAGA ATGAAGTATT GAAGGGCATC AACCTCGAGA	720
TTAAAAGAGG AGAAGTTGTC GTTATCATCG GTCCTTCAGG GAGCGGGAAA TCTACCTTGC	780
TTGCTCTAT GAATTTGTTG GAAGAAGCAA CCAAGGGGAA GGTTATCTTT GAGGGAGTCG	840
ATATTACGGA CAAGAAGAAT GACCTGTTTG CCATGCGTGA GAAGATGGGC ATGGTTTTC	900
AACAATTCAA TCTCTTCTCT AATATGACTG TGATGGAAAA TATCACCTTG TCCCCTATCA	960
AGACCAAAGG TGACAGTAAG GCCGTTGCAG AGAAAAGAGC TCAGGAACCT TTGGAAAAAG	1020
TTGGTTTGCC AGATAAGGCA GACGCTTATC CACAGAGTTT GTCAGGTGGC CAGCAACAGC	1080
GGATTGCCAT CGCGCGTGGG TTGGCTATGG AACCAGATGT TTTGCTCTTT GACGAGCCAA	1140

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CTTCAGCCCT AGATCCTGAG ATGGTTGGAG AAGTTCTGGC TGTATGCAA GATCTAGCCA	1200
AGTCAGGAAT GACCATGGTT ATCGTAACAC ATGAGATGGG ATTTGCCCCG GAGGTGGCAG	1260
ATCGTGTCAT CTTTATGGCA GACGGTGTGG TTGTTGAAGA CGGAACACCT GAGCAGATTT	1320
TTGAACAAAC CCAAGGACAA AGGACTAAAG ACTTCTTGAG TAAGGTTTTA TAAGTTAGCT	1380
TTGTTTAGCT ATTTGTAGCC AGCTTTAAAC GTTAAAGAGA AGATTAGTGA AAAGCTCAAC	1440
CAGAGCTTTT TCTTATAGTT TAAAGCTATA GGATTGCCTA GGAAAGAAGT GTTAGAGCTA	1500
CATTGTATTT TTTGGTATAA TTAAGATAT TTGTAAGAAA AGAGAAGTGA TATGACACAG	1560
ATTATTGATG GGAAAGCTTT AGCGGCCAAA TTGCAGGGGC AGTTGGCTGA AAAGACTGCA	1620
AAATTAAAGG AAGAAACAGG TCTAGTGCCT GGTTCGGTAG TGATTTTGGT TGGGGACAAT	1680
CCAGCCAGCC AAGTCTACGT TCGCAACAAG GAGAGGTCAG CCCTTGCGGC TGGTTTCCGT	1740
AGCGAAGTAG TACGGGTTC AGAGACCATT ACTCAAGAGG AATTGTTAGA CCTGATTGCT	1800
AAATACAATC AGGATCCAGC TTGGCATGGG ATTTTGGTTC AGTTGCCATT ACCAAAACAC	1860
ATTGATGAAG AGGCGGTTCT ATTGGCTATT GACCCAGAAA AGGATGTGGA TGGTTTCCAT	1920
CCTCTAAACA TGGGGCGTCT TTGGTCTGGT CATCCAGTCA TGATTCCTTC GACACCGGCA	1980
GGAATTATGG AAATGTTCCA TGAATATGGG ATTGACTTGG AAGGTAAAAA TGCAGTCGTC	2040
ATCGGTCGAT CCAATATTGT CGGAAAACCT ATGGCCCAGC TTCTTTTGGC AAAGAATGCA	2100
ACAGTAACCT TGACTCACTC ACGTACTCAT AATCTTTCCA AGGTGGCTGC AAAAGCAGAT	2160
ATTCTGGTTG TTGCAATCGG TCGTGCCAAG TTTGTGACTG CTGACTTTGT CAAACCAGGT	2220
GCGGTAGTCA TTGACGTTGG GATGAACCGC GATGAAAATG GTAAGCTCTG TGGGATGTT	2280
GATTATGAGG CGGTTGCCCC ACTTGCTAGC CACATTACGC CAGTCCCTGG AGGTGTCGGT	2340
CCTATGACCA TTACTATGCT GATGGAGCAA ACCTATCAGG CAGCACTTAG GACATTGGAT	2400
AGAAAATAAG ATAAAAATTT TCTGAGGAAA GTGTATTTTC TATAGCTATA TCTAAATGA	2460
TAGAAATGAA TATTAAATTT TAGAAATAAG TTTATAAAAG GAGGTTTGCG CCTCCTTTTT	2520
GTGTATAAT GGAGTGAGGT GATTAGATGA TTTTAAAAAT TTATAATGGG GAATATAGTT	2580
TACAATGGGA TGGAATATAC TACTTAGCAC TAATTGATTA TCCAAATATT CAAGAGTGGG	2640
AATTAGAAAA AATTGCTAAA TTTATAGCTT ACGAAAAACT TCATAAACGT CAAACAAGTA	2700
TTGAGTGTGC TGATTCTTGT TTAATAAAAG AAATTTTAGA TTACATCTGT CAGCATCCCT	2760
TTCTGCCACC ATTTACTCCT ACAGATAAAA GAGTAGCCTC GACTTATGAC CTACATAAGA	2820
GGTTAGTGAC TTCAGACTAC TGTAGTCATA CTACGACTAT AGATGCAGCG ATTTCTATTT	2880

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TTAAAACTGG TCGTCTTTTA TCTGCTGTGA AAGCCTTTGG GCGAGATGCT GAGGAGTTGG	2940
TTTTGGATAG TCGAAATGCT GCATCTGATC CGATAGATTA TTTTGACTAT GTCATGTTAG	3000
GGTGGTCAAA TACAAGTTCT GGTATCGAT TGGCGATGGA GCGTTTATTA GGTGAGCTC	3060
CTTCAGAGAA AGAATTACAA GACAAGTTTA TTCCTGGAGT AAGTTTTCAT TTTATCTATA	3120
CAGATTTGAT TAAAGTTCCT GGTATATTTT TTGATGGTTA CATTGCTGTA AAAATTAAGG	3180
ACATGCTTAA TTTATTAAGT GAGTTGTATA TTTGCATTAT TCCAACTCAT AATAAGAGCC	3240
AATTTGAAAA TATTATCCA ACCAAAATAC AAGATAGGGT GTATTATCTT GACTATGCTG	3300
GAGAAGACTT AGAAGAGTGG ACTAAGAAAG TCTATCAAGT TGTTTTAAAA CAATCAGATA	3360
AAGGATAGTT GAGGAAAAAA CGATGAAAGT GATTGATCAA ACCTTACTAG AAAAAGTCAT	3420
TATTGAACGT TCTGTACAA GTCATAAAGG AGACTACGGT CGTCTGCTGT TGCTTGGTGG	3480
GACTTATCCT TATGGTGGTG CCATCATCAT GGCTGCTTTA GCAGCTGTAA AAAGCGGTGC	3540
AGGATTGGTA ACCGTTGGAA CGGACAGGGA AAATATCCCT GCTCTACACA GCCATTTGCC	3600
TGAGGCTATG GCCTTTTCTC TGCAAGATCA GTAATTGTTA CAAGAGCAAT TGGAGAAGGC	3660
AGAAGTTGTC TTGCTGGGGC CTGGTTTACG AGACCATACG TTTGGAGAAA ATCTTGTA	3720
ACAGGTCTTT GCTAGCTTAA AAAAGAATCA GATTTTGATT GTAGATGGAG GGGCCTTAAC	3780
CATCCTTGCT AGGACAAGTT TGTTGTTTCC ATCTAACCAG CTTATCTTAA CTCCCCACCA	3840
AAAAGAATGG GAAAACTGT CTGGTATTGC TATTGAAAAG CAAAACGAAG GTACAACATC	3900
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ACAGGCCAGT CTCTACGAAC GTGTGGCAGT AGCAACCCAT CTTCAATTCAG CCATAGCCCA	4140
AGAACTATCT CAAGAAAATT ATGTGGTCTT GCCGACGGAA ATTAGTAATT GTCTTCCTAA	4200
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TTCTTAATTC ACAAAAAACG AACGTTTAGT ATTCTTCTTG CTAAGAACT AAATTTGTTC	4320
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AATTGATTG TTAGAGCTCT ACTTTTATTA AAAAAATCA ATTTCAAGGA TAAATAAGCA	4440
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ATTTATCAAG GATGGGATGG TTGTAGGGCT AGGAACAGGT TCTACTGCCT ATTATTTTGT	4620
CGAAGAAATC GGTCGTCGAA TCAAGGAAGA AGCCTTGAG ATTACAGCTG TGACGACTTC	4680

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TAGTGTGACC AGTAAACAGG CTGAAGGGCT CAATATCCCG CTCAAGTCTA TTGACCAAGT	4740
AGACTTTGTC GATGTGACAG TCGACGGGGC GGATGAAGTG GATAGTCACT TTAATGGAAT	4800
CAAAGGCGGT GGTGGTGCCC TTCTCATGGA AAAGGTGGTC GCAACACCAT CAAAAGAATA	4860
CATTTGGGTG GTGGATGAAA GCAAGCTGGT CGAAAACTA GGTGCTTTTA AATTGCCAGT	4920
AGAAGTGGTT CAGTATGGTG CAGAGCAGGT CTTTCGTCAT TTTGAACGAG CTGGCTACAA	4980
ACCAAGTTTC CGTGAAAAAG ACGGCCAACG TTTTGTGACC GATATGCAGA ATTTTATCAT	5040
TGACCTCGCC TTGGATGTCA TTGAAAATCC AATTGCTTTT GGACAAGAAT TGGACCATGT	5100
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ACCAGATGGA GTTCAGATTT CAACTTCAAA AAAAGGAAAA TAGAAGGGGG CATAAGATGT	5220
CTAAATTTAA TCGTATTCAT TTGGTGGTAC TGGATTCTGT AGGAATCGGT GCAGCACCAG	5280
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CTCGTGAAC TCCTCTTAAG ACTGTAGCAG CTGAAAGCAA TCCAACCTGA TATGCAACAA	5460
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CTGTTGCCGA TAACTTTGGT GTGGAACTG CTATGATTGG GGAAAGTTTC TTAGATAAAT	6420

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TGGTATAAGA TGACGCGCTA TGCTTTGCTG GTGAGAGGTA TCAATGTTGG TGGTAAGAAT	6480
AAGGTCGTCA TGGCGGAGCT TCCTCAAGAA TTGACAAACT TGGGACTGGA AAAGGTTGAG	6540
AGCTACATCA ATAGTGGCAA TATTTTCTTT ACTTCGATAG ATTCCAAAGC CCAATTGGTT	6600
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AGAGGAGCCA AGACTAGCTC CTCAAACGCT TCCGGAAGCA AGTGAAGTTC TTGAAAACAA	8400
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ACCCACCGT AAAATTACCC ATTGGGTAC GACATTGAAT TCCAAGGTGA GTGACGATGA	9780
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AATCAAAGAG CAAACTAAGA AACTAGCCGC AGGTTGCTCA AAGCACTGCT TTGAGGTTGT	9960

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GAGATTTTCG AAGAGTATAA ACAGAAAGGT AGAGCGCGTG TTCTAATTTG AACACGAGTA	10080
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CGGGCGACTC TCCTCTAAAT CAAAATTAAG AAAGGAATTG ACCCCACCCT AAAAGTAGTG	10200
GGAAAAAGAT AGTTGATCTA GCGAGCATCG CTCACTGCGC CCAACTCCTA TTTTCCTTC	10260
GCTTTTGTAT GGGTTTGTA TCTTCTCAA TATAAATAT AAAATAAAGA AAGGTAGAGC	10320
GTGTGTTTTG ATTTGAACAC GAGCGGAAAA CTCGGAAAAAT AGATAATCTG ACTGAAAAAT	10380
CAGGATTTCT CGTCAGGTTC CTAATTTTCA GTCGTTTTCT TCTCGCTCTT TGTATCATAA	10440
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CCAAAAAGGG GCTCTTTGTC AACTGTAGTG GGTGAAAAA AAGCTAAGCT TGAGAAAGGA	11220
CAAATTTTCG CTTTCTTTT TTGATATTCA GGGCGATAAA AATCCGTTTT TTGAAGTTTT	11280
CAAAGTTCCG AAAACCAAAG GCATTGCGCT TGATAAGTTT GATGAGATTA TTGGTCGCTT	11340
CCAGTTTGGC ATTAGAATAG TGTAAGTTGAA GGGCGTTGAC GATTTTCTCT TTGTTCTTTA	11400
GAAAGGTTTT AAAGACAGTC TGAAAAAGAG GATGAACCTG CTTGAGATTG TCCTCAATGA	11460
GTCCGAAAAA TTTCTCAGGG TCTTTGTTCT GAAAGTGAAA AAGTAAGAGT TGATAGATCT	11520
GATAGTGGTG TTTCAAGTCT TCTGAATAGC TTAAATCTT GTCAAGAATT TCTTTATTTG	11580
TTAAGTGCAT GCGAAAAGTA GGGCGATAAA AACGTTTATC GCTsAATTTA CGACTATCCT	11640
GTTGGATGAG TTTCCAGTAA CGCTTGATAG CCTTGATTG ATGAGATTTT CGTTCAAAC	11700
GATTCATAAT TTGAACACGA AAACGACTCA TGGCACGGCT GAGATGTTGG ATAATATGGA	11760



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AACGATCTAG AACGATTTTA GCACACGGAA AAAGCTGTTT AGCCAAGTCA TAGTAAGGAC	11820
TAAACATATC CATCGTAATG ATTTTCACTT GACAACGAAC GGCTCTATCG TAGCGAAGAA	11880
AGTGATTTTG GATGACAGCT TGTGTTCTGC CTTCAAGAAC AGTGATAATA TTAAGATTAT	11940
CAAAATCTTG CGCAATGAAA CTCATCTTTC CCTTAGTGAA GGCATACTCA TCCCAAGACA	12000
TAATCTTTTG AAGCCGAGAA AAATCATGCT CAAAGTGAAA GTCATTGAGC TTGCGAATGA	12060
CAGTTGAAGT TGAAATGGCC AGCTGATGGG CAATATCAGT CATAGAAATT TTTTCAATTA	12120
ACTTTTGAGC AATTTTTCG TTGATGATAC GAGGGATTTG GTGATTTTTC TTTACCAGGG	12180
GAGTCTCAGC AACCATCAT TTTGAASAGT GATAGCACTT GAAACGGCGT TTTCTAAGGA	12240
GAATCTAGA AGGCATACCA GTTGTTCGA GGTAAGGGAT CTTAGACGGT TTTTGAAAGT	12300
CATTTTCTT CATTAGACTT CCACAATCAG GGCAAGATGG AGCCTCATAA TCCAGCTTAG	12360
CGATAATTC TTTGTGGGTA TCCATATTGA TGATATCTAG AATCTTGATG TTTGGGTCTT	12420
TAATATCGAG CAGTTTGTG ATAAAATGTA ATTGTTCCAT ATGATTCTTT CTAATGAGTT	12480
GTTTTGTGCG TTTTCATTAT AGGTCATATG GGACTTTTTT TCTACACAAA AATAGGCTCC	12540
ATAATATCTA TAGTGGATTT ACCCACTACA AATATTATAG AGCCCAAAAA GGAAGCCCTT	12600
TATGAATTGT AGGACTTCCT TTTCTTATCC AGAAATTGAT CTAGCTCTCT CTGATTTTCA	12660
AGAATAGTGA CTTTATGTGA ATATTCTTGG CAAAGTTTTT GGTAATTTTC TTTTGTAGTT	12720
TTGCGGACGC CCATCCCAA GAATCCATCT GATAAACTCC CACTCAAAGC GTTCAGGGCA	12780
ATCTACCGCC ATACTTTCTC TGACTTTTCC ACGGTATTTA AGATAACGCT TAAAGGCTCT	12840
AAAGAGACAG GTCAATGGCG AAAAATTGAG AAAGATGATT TGGTCAGCTT CTTGCATTCC	12900
TTCTTGGTAG TAGCACCAAG AATAATTACC ATCGATGACC CAAGCTTTAT GCTTGGTGAG	12960
AAAGTTTTTT ATCTCGGTTA ACATCCATTC GCAGTCACTG TCTTGCCAAC CAGGTTGAAA	13020
TTGGAGTGTG TCCATGTGCA GTTTTGAAT GGAGTAGTAG TTAGATAACT TTTCTGCTAT	13080
AGTTGACTTA CCAGAACCAG AATATCCGAT AATTGCGATT TTCATTTTCT ACCTTTTCCT	13140
ATTTGGAGAC AAAAAACAG CCTCTATGGA CTGTTTCTTA TTTAACAAGT TTAGCTGAAA	13200
GACGAGCTTT ATCGCGGCTT GCTTTGTTTT TGTGAATCAA ACCTTTAGTT TCTGCTTTAT	13260
CGATAGCTGA GCTAGCAGCA CGGAAAAGTT CTTGATGAG GTTTGCTTCG AAAGCTTTTA	13320
TAGCAGTACG CATAGCTGAT TTTTGAGCTG AGTTCTTTTC GATTCGTCTA ACGTTCAATT	13380
CAGCGCGTTT GATAGCTGAT TTAATGTTTG CCAATGGTCT TACCTCCATA TTTACTAACT	13440

(2) INFORMATION FOR SEQ ID NO: 129:

890

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 8512 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 129:

CCTTTTTC	AAACTAGAT	ACTAGTCTAT	CAAAAGTAGG	AAAGGGTTTC	AAGAAAATTG	60
ATTGGAAATT	TTTTGAAAAT	CATAGAACTA	TTAGCTAATC	CCTAGTATTG	AAAAGACTGG	120
ATAGCTTCTT	TCAGGTCATC	TTGTAACTA	TTTCTCTGGT	CAAGTTGGAC	ATAGACTTCC	180
ACCAGACAGG	ATCTAAAGTT	GGAAAATTTG	TAAAAATCCT	CCTTTCTTC	TATCGGAAAA	240
TCAACAGTTT	TTATCCAAGA	AGCTACTTGT	TCTTGCTCCA	ACTTCCCTTG	TAAAATAGGT	300
TCATAGATCA	CTCTTGCTAA	ACGCCAATCC	TCATCATCTG	TAAAGCGAAT	CGACATTCTT	360
TTAAATAGTT	GGCCAAGTAT	ATCAAATACT	TCATGAAGTC	TGTTTTTAGG	AAAGTCTGGA	420
TGACAAACCA	CCTCTGTCAG	TAAATCGGCT	CCATGTGCAA	AAGCGTGAAC	CCAACCATAC	480
TGACTTGAGA	AACCCCTTGT	ATCCTTTTCT	TTTGAAAGAT	AGTGCAAGCC	TTGATTTAAA	540
AGGACATTAC	GAATTTCTGG	AGAAGGATTT	CCCAAATGAT	CAAACAACCA	CTGGATTCTT	600
TCCTGGTTAT	AATTTGGTTT	TTCTTCTGCT	ATTTTTCTTA	GTAAATCTTG	ATACATGGTC	660
AATACCTCTA	CATTTCTAGC	AACTGTTCAA	AAAGGCAGTC	TTAAATGACT	CAATATTGAA	720
TTCTCAATTA	AATACAATCT	GATATAAAAT	GACGTAAATA	ACTATCAATA	CCAGTTCTAC	780
AGTAAGTTCA	AATTTAACAT	CACGACCTTC	AACGACATTT	TTGAAAATAG	CTACAACATA	840
GACAAATAGA	ATGACGCTTA	ACAAGCCCAT	AAACATCATT	CTAAAAAATT	TTTCTATTCC	900
CCTACTCTCC	CAACTCAGCA	CTATAGGAGA	TAATCTGGTC	AACTGTGTCA	GACAAGAATT	960
GGATGGTATC	ACGGAGTGGT	TTGTCTGTTG	AAATATCAGC	ACCGATAATC	ATGGCTGACT	1020
CAAGTGGTGT	CTTGCTACCA	CCTGATTTGA	GGAGATTGAG	CCAGTCTTCA	GCTCCAGTTT	1080
CAGAATGTTT	TAGATGAAGG	TAACCAGCAG	TCGAGATAAC	TAGTCTCTGCT	GAGTAAGTGT	1140
AACTATACAA	GCCCATATAG	TAGTGAGCTT	GGCGCATCCA	AGTCAGAGTT	GCATCATCGT	1200
CAATTTCAAT	AGCATCTCCC	CAGAAATCCG	TCAAACTTC	CTTCATAATG	CTGTTGAGCT	1260
TGCTTGCTCC	AAAGGTCTCC	CCTTCTTCAA	TCAATGTATA	CACCTTACGC	TGGAAGGCGG	1320
CTTCCAAGAG	GTGGGTGATA	AAGTTATGGA	AGTAGGTGTC	TGTCAAGCGA	TGAGCCAGAG	1380
CGAAGCGTTT	TTGACGTGGG	TCATTAGACT	GGTTCTCCAA	GTAATCACTG	AGTAGCAATT	1440
CATTGAAGGT	TGACGGTGCT	TCAACATAGT	AGGTCGACAT	ATGGGCATTG	AAGTAACTTT	1500

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GATGATTGTC TGAAAAGATG AATTGACCAG AATGCCCGAT TTCATGAATC AAGGTATAGA	1560
CATCGCTCAA ACGGCCTGTC CAGCTCATGA GTACATAAGG GTGTACGCGA TATGGGTCCG	1620
CCGCATAACC ACCGGAATCC TTGCCACTGT TAGCAGCAAA GTCCACCCAG CGCTCTTCTT	1680
GGTAACGAGC AACTTCCTGA CAATATTCTT GCCCCAAAGG TTCTACCGAC TTCATGACCA	1740
AATCATAGGC ATCGTCAATA GTCACTTCAG GATTCAGGGC GCTGTCCAAG TCCAATTTC	1800
AGTCTGCAAA GGTCATCTTT TCAAGACCAT TTACCTTGGC AACATGCTTG AGGTATCTCT	1860
GAGCGACTGG TGCAAAGTCC TTCATGATGA GGTCATCTG GCGGTCAAAC ATGACACGGT	1920
CCACTTCTTG TTCAGCTAGA AGATAGTCAA AGACAGAGTC GTATCCCTTC ATATCAGCCA	1980
AGAGTTTTTC AGACTTGACC TGAGCCAGAT AGGCTGCTGC AGCCGTATTT TGGTGTAC	2040
GAAGTCCCTC TGAGAAGGAA CGGAAGGATT TCTCACGAAC CTCAGCATCC TCATGGTTTT	2100
GGTAGAAATT CTCATAGGTC ACAAAGCTGT TTTGTAGGT CTGCCATGG GCTTCAAAGT	2160
CAGCCATTTC AAAATCCCCA GCTCGCATCT TAGTATAAAT GTCCTGCGGA CTGTAGAAAA	2220
CTTCACCGAG ATTTGTCAAG GCCTTCTCCA CATCTGCCCC TAAGTAGTGG GCTTTTTTGA	2280
TTTTAGCCTG ACGAATGGCA GCTGTTAAAT GTGGCAATTT ACCCAAACGG TCCAAGACTT	2340
CCTCATCTGC TGCCACCAAG GCATCGTCAA AGAAGGTCAA GGCTACGCTG GCATCTGT	2400
CAAATTCAT CCCAGCTTGG GCAATATTGG CAAATTCGTC ATTGCTATAG TCCGTCGTCT	2460
GAGGCATAAA ACCATAGTTG CCAATATGGC TCATCTGAAT GTAGATCTGT TCCAATCCG	2520
CAAAGGCCTT CTCGAAATCC TCAAAAGTGT GAAGATTGCC CTTGTAATCA CGGCTAACT	2580
GGTTGATGTC TTCGCGAGCT TTCTCGATTG CACGCAAGAA ATCCTCACGG TCTTGGTATA	2640
GGGCTGTAA GTCCCAGAGT TCCTTCTCTG GAAATCTGA ACGGTGTTTT TCTTCCATTT	2700
TCTTCTCTT ATTTCTCTAA TTCTACTAAA AACTAAGGG CTGATAAAGC GTAAAGCGGT	2760
GCTGTTCTG CTCGCAAAAT ACGAGGACCT AGGCCTGCCA AAACGGCTCC TTTAGCTTCA	2820
AAACTTTCGA TTTCTGCAGG TGAGAGACCG CCTTCTGGAC CAAAGATAAA GAGCAGTTTG	2880
GCTCTGTTT CAAGACCAGT GACTGCTTGC AGAAGCGCAG CGGCTTCTCC TTCTTTAGCT	2940
GATTCTTCAT AGGCTACTAT GATAGAGTCA AACTGGTCCA GCTGAGCTAG AAAATCTGCT	3000
TTTTCTCGA AAAGTTTAAT ACTTGGTACA ATATTACGCT TGCTTTGCTC GGCTGCTCCA	3060
AGGGCAATTT TTTCTAGTTT TTCAACTTTT TTACCCAATT TCTTGCCATC CCACTTGCCA	3120
ACTGACCACT CTGCAGGAAA GGCCAGATT TGGCTAGCCC CCAGTTCGGT TACTTTTTGA	3180
CCGATGAACT CCAGCTTGTC TCCCTTGGGA AATCCAGATG CGATGGTCAC TTGGACTGGT	3240

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AGTTCACAT TGTCAATTAA TTCTTGACC AACTCAAAC GACGATTTTC CATATCCAGC	3300
ACGCGCGCCA AGCGCTTGAT GCCATCATCA AAGACTAAGG TAACCTCATC CTCTTCTTTC	3360
AAGCGCATAA CCTGAAACAT ATGCTTACTG GTTTCCTTGT CCTCGATAGT GACAGGAGAG	3420
ATAGCACTGC CTTTACAAA ATACTGCTGC ATGCTAGCCT CCAATCACAC CAGAGATATC	3480
CTTGGTTTTTC TTAAAGACAC AGGTATTCCA TTCCCCTTGA ACCATGTGAG TTTCGAGGAA	3540
AAATCCAGCT GACTCAGCCG ACTGGCGCAC CATGTCCAAC TTGTCCTTGA TAATGCCACT	3600
CATGATCAGG TAGCCTTCAT CCTTTACCAA GCGATAAGCA TCGTCTATTA GATGAATGAG	3660
GATATCCGCC AAGATATTAG CCACAATCAC ATCTGCCTCA ATTTCCACAC CCTTAAGCAA	3720
ATCTCCAGCC GCTACATGGA TATTTTCCAT GCCAGGGTTG AGCTCAATAT TTTCCTGAGC	3780
CACACGAACC GCCACATCAT CCAGGTCATA GCGGAAAATT TCTTTAGCCC CCAGAAGCGA	3840
GCTGGCAATA GAGAGAACCC CTGAACCACT CCCCACATCT AGCACCGTTT CGCCACCACG	3900
AAGAACCTGT TCCAAGGCAA AAAGGCTCAT CTTGGTAGTT GGGTGGGTTT CAGTACCAAA	3960
AGCCATGCCA GGATCCAGCT TGATAATCAT TTCCCCGCA GTCGCCTCAT AGTCTGTCCA	4020
AGAGGGAACG ATGGTCAAAT CATGAGTGAT ACGAGCAGGT TCATAGTATT TCTTCCAGTT	4080
GTCTGCCCAG TCTTCCTCAG CCAAGGCAGT CGTACCTATT TTAACTCTC CCAAATCCAT	4140
AAAATCTGTC AATTCTGCTA GACGAGCCTG CAAATCCGCC TCAACCACTG TCACATCCAC	4200
CGTGTCAAGG TAGTAGGCTG TCACTACGAT TTCTTCTTGC TGCTCCACCT CTGGGAAAAT	4260
CTCTCCAAAG CGGTCCACAT TTCCACATA GTCCATACTG TCTTCGATTG CGACTCCTTG	4320
CGCTCCCAGC TCAATCAAGA GATTGGAAAC CAACTCCTCT CCCTCAGGCT TCACTGTAAC	4380
TTTTAACTCT TGCCATGTTT CCATTATTAA TACCAAGCCC GTAAAACACA AAACCAAAAT	4440
AGGAAATTCT CTGAAGACGC TTGTGTCTAA GAGAAGTTTA TCTTTTGGC ACAGTGTTTA	4500
GGGCGGGTTC AGTTTAGAAA TGTAAGTAA CCATCCTTTC TAATCACTTA CTTTAAATA	4560
ATCTTTTAAT CTCTCTTGCA ACTGAGGCAC AACTTGACTG GAACTAAGAA ATTCCTCAAC	4620
ATTCATCAGC TGATAGCCCT GTCCTTCATC TCCGAAGATG ATATTGTCAA ATTGTTCTTG	4680
TCTTAGCTGA CCAACCATAA AGACCGATTT CTTGCCTTTA AAAATTACGC TAGGATAAAT	4740
CTTGCTCCAA AGCAGACAGT CTTTATCTAA ATGAATTCCC AGTTCCTCAT AAACCTCAGC	4800
CCGAGCGCAT TCAAAAGGGC TTTCGTCCCC TTCACGGCCA CCACCTGGCA GTTCCCACAT	4860
ATTGGCCCAG GGAATACTTG CCTTATCATC GCGTAAGATA GTCAAAAGCT TATCCCCACA	4920
AAACAAAGCA ATCTTGCAAC CTGTGAAATC AGAAATTTCT AGTTCCATCT TCAGTTCCTT	4980
CTAACATTTT CTTTTCAGC TCGGCTAACC AGTTTTCATA ATATCTTTTC TCATCCCTCA	5040

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ACATTGCACT ACTATCCATT TTCTGTCTAG CAATCTTGAG AGCCTTACGA GTTCGATCTA	5100
CATCTTTCTT CACCTTTAAT TGATACCAGG CTGTATCAC TTGAAGATTG GACAGTTTGA	5160
GAGACAGAAA CGATTTGACC TGTCGAATAC TAGCATATTG CTCCGCTTGC TCAAAATCTC	5220
CTTCCAACAA GGCGATATGA AGCAGGGATA GTTGGGCAAC TGTCTGCATC ATCGGAGTAG	5280
TTGTCTCTC AAGTAATGCT TGAACTGCT GTTTAGCTAC TTCTTCCTTC CCTTCCAAAA	5340
TGGAACTTC ACCTTGATA CCTAATACAC CATCCGCAAA ACTCCCTCGT GCATCCTCAG	5400
GAACTGCTTG AACAAAGTCT TTCAAATCAT ATCTTTGAGG AGCTAGCAAG GTCTGGGCAG	5460
AATGTCTCAA TACCAGGTAG GCGTATTGG TATTTTCAGG GTGTTGTAGT AATTCCCAAA	5520
TTTTTGCTCC ATCGGTGATG TCGACTGGCA AAATGTTATT TAGGAAGAAA GATAAATTAA	5580
GAAAAATCCA AGTCCCTGCA AAATACCAGC TTCTTGTCAA AAATCCAAAC AATATCGCCA	5640
ATAATATCAA GCCGAGATGA ACCATCAAGC CTCCTGAAAG CATCAGGATG ATCTTTTGAT	5700
CGCTTTCATC CTCTTTTAAA CCAATGTATT GAGCACCAAC ATTTTTCAGA ATGGCTGTTT	5760
TACTAAGATG AAACCTGCCT GACTTTTTGG TCAAAATAAA ATGTCCTAAT CCAAAAGCCA	5820
CCAGCCGATA GCCTGTCAAG TAGCCACAAA AAGCATGACC CAGCTCATGA AGAATAAAGA	5880
TTAAATACAT GCTTAGAAGA GCGAAGGCAT AACCAAAAGT AAAGGCTAAA ACTGCGGAAT	5940
ACCCCAACTC TGCAAATGCG ATTGTTCCAC AAGCAAAAGC TAGCATAATA AAGACAACAG	6000
CTAGCACATA AACCAAATAA GTCCCAATTT TCTTCATAAC ACCTCCAACC AACTCCTAGT	6060
ATCTTGATA AGGATAAAAT TCTCCCTTTT CCAAGCCAAT TTTTCCTTCT TCAAAGACTT	6120
CTTGTTTCCA TTCCATGACA AATTCCTCTG CTCTGGGTC TTCCAAAAAG TCCATGAGGA	6180
CATCTAGCCC AACCTCAGCA GTATCTTTAA GGAAAAGCGC AAAATAAGCT AAAAATTCAC	6240
GGGAAAATCC TTTTITAGGC AGGTAAGGAA TAACAGTCAA ATAGTCTTCC TCATTGACTG	6300
TTGACTTGGC AGGATTGTAG AAAAGGACCG CTTCCTCAAA AAGAATGTCA TCTGATGAAA	6360
CCTCTCCGTC TTCATCCACC ATCTCCACAC CGCAGCATTT TCGCTTCCA ATAGAAAACT	6420
CACCTCTACC GCATGGTTGC GTTGTGCCA GCTAATCTCA AAGTCAAAGG GAAAGTTCTT	6480
GTCCAACCTT TCCTCTAAAA TATCTAAAAA TCCGTATGTT GCCATTTTGT CCTCTTTCTA	6540
TGCGACTCTT TAATCGCCCC GATTGCTCGG AAATATGCTA AAATAGATAC TACCATCTTA	6600
CCACAAAATT ATTTTATGTC CTAATTATAC CATATTACCT CATTTAAACC CTGTTTATCA	6660
GTGATTTTCT TAAAAGTCTG ATTTCTTCAT TTCTCATAAA AATCAATATA AAAAGCCCTC	6720
GAAAGGGCTA ATAAATCTAT AAAATCAATA GGCGAGTAAC TAGCACAAGT GGACGTGCTT	6780

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TTTTATTGAC TATTACCACG ATACCACGCT TAATCTTAGG CTTGAACTTT CTTATCTGCA	6840
ATAGCGTCTG TCAAAGTCTG AGAAAAGTTA AGCCCCATTT CTCGTCCCAA CTTATCTGCC	6900
CATTTTGGA TGGTCAAAGT CTTTTTAATG GGTTCCTGAC TTCCTAGGTA TTCTGATACA	6960
TCAACAGATA CCATAGAAAT AAAAGATTTA TCAAGGTCAT AGGTTGACAC GAAATCTTCA	7020
TCATCTTTAA AAGGATCATT ATCAATTAAA GACAAGCTAT TGATATCTGA TGGCTGAGGT	7080
AACTCTCCAT CACTCTCTAT CAAATCTGCA ACAGTTATCC CTAGCCACTC CGACCCCAT	7140
GCCAAAGCCT CAGAAATCCC CTCTCCTTGT GTAGCTGAGT ATTCAAAATC TGGGAAATGG	7200
ACAAAATAAG TCGCTTCTGT TCCGTCTGTG TCGTCATAAT AAAATAAAGC TGGATACGTA	7260
ACTAACATTT CACTACCTCC ATATCAAAAA GCAGGGACTG AATTTTACAA CCCAGCTTGC	7320
TTTCTTATCC CTCTTTCAGT GTACTTATTC AGCTCACCAT GAAGGATTGT GATAGGTCTT	7380
TCCCCTTGCT TTTCCATTTT AATATGGGAG CTTTACC GCCTAGTCTT TATCCAACCA	7440
TGGGCCGTAA GGAGTTTAAC CATCTCTTTT TGTGTCATAG GCATAGCGCT TTTACCTCCT	7500
GACAACACCA TTATAACACG TGTTACACGT ATTGTAAAGG AGTGATACTT ATTATTCTAT	7560
TATACATAAA AGCCCCTAGA TGTGGTTCTA AGGGAAGCCA ATTTATTCAT ACCTATTTTT	7620
CTAATGAGTA GTAAAACTG CTTCTTTATC GAGCAATTCA TCATCTGTAT AGTCAATTGT	7680
AAAAGTATCT CGATCTAAGA CAGATTGAGG CGGAGTTGAA TGAATCATAG GAACACTGCG	7740
TACTCTATAT TTTTATCTC CAATTTTAC AAACGTATAC TCTTCGAAAA TCAAATTCAA	7800
ACCACGTCAA CGTCGCCTTA CCGTACTCAA GTACAGCCTG CGGCTAGTTT CCTAGTTTGC	7860
TCTTTGATTT TCATTGAGTA TGATTAACTC TCAAGTCTTC GAAATCAGGA TTTTCAACAG	7920
TTATTACAAG GAGGCGATTT ACTACTTCAA AAACATCAAT TATCTATTT TTCATATTTT	7980
TTCAACCCAT TATTAGAATG AACTTCTTGG TAAGCAAAAT CAAGTTTAGA TTTAATGTTT	8040
TCGTACAAAT CTAAAATCTC TTTTGGAGTA TCTTCCCGGA AGAAAAGTTT TCTTTCCCT	8100
GAAATAACTT GATCACTAAG AATCCAATGA CGAATTTGTT TTGTAAAAAT CAAAATTGCC	8160
TGACTTGGA GTTCCATCAT TTCCATTGCT TATCACCTCT CTTTTCATTA TAGTTCATAC	8220
AATGACATTC AGCAATATTA TTTCTCAAGT CAGCACTTCC ACTTCTTTAG GCTCAACTAT	8280
CCTATTTTGA GCTTTAAGGA AAATCAAATC TCTCATGCTG ATACCTCTCC TCATTAAATT	8340
AAATAGTAAA AAAGATTCTA TCTCACTCCC TGATTATTAC AAAACCATTG AAATATCACA	8400
ACTAATAGGC TAGAATGGAC ATAGTAAGAT ATAGTAGATG AGTCATTCTA CTCAAATCCA	8460
CGTTAGAAAG GACTGCTATG CCAGACAATC TCGCCGTTGG CATGCGCCCG GG	8512

(2) INFORMATION FOR SEQ ID NO: 130:

895

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 2869 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 130:

CTCGTTTCAA GGTGAGTCT CTTGCAAATC TTGTTGCGGT TCTTCCTTTT GCCAAGGCAT	60
CTCTCCCATG GTTGGTGCCA GCCATTGTTG GAATCTTGCT CTCATTGGTT CTACCAAACA	120
AGCAAGAAAG CGATGTTTTT GAAATGGAAT AATCACTTAA ATCACTTTTG TAGCCAAGTC	180
TACAGGAGTG ATTkTCTTTT TTTATCCGAT GATAAATGTG TTATAATAGG TAGCGAAAGA	240
GGTGAAGAAA TGAATCAAAC AGTAGAATAT ATCAAAGAAC TGACAGCCAT TGGCtCGCCA	300
ACAGGCTTTA CTCGTGAGAT TGCGGACTAT TTAGTCAAGA CTCTAGAAGG TTTTGGTTAC	360
CAGCCGGTTC GCACATCCAA GGGCGGTGTC AATGTAAC TAAGGTCA AAATGATGAG	420
CAACATCGCT ATGTGACTGC CCATGTAGAT ACGCTTGGTG CTATTGTCCG TGCTGTCAAA	480
CCAGACGGCC GTCTCAAAT GGACCGTATC GGTGGCTTTC CTTGGAACAT GATTGAAGGA	540
GAAAACGTGA CCATTCATGT GGCTAGCACA GGTGAAAAAG TATCAGGAAC CATCCTCATC	600
CACCAAACCTT CTGCCATGT CTATAAGGAT GCAGGAACTG CAGAACGCAC GCAAGACAAT	660
ATGGAAGTGC GTTTGGACGC CAAAGTAACT AGTGAAAAAG AAACCTGTC TCTTGGCATT	720
GAGGTCGGTG ATTTTATCAG TTTTGACCCA CGAACTGTCG TGACAGAGAC AGGTTTATC	780
AAGTCTCGCC ATTTGGATGA CAAGGTCAGT GCGGCGATTT TGCTCAATCT CCTTCGCATT	840
TATAAGGAAG AGAAGATTGA ATTGCCCGTA ACAACTCATT TTGCTTTTTC AGTCTTTGAA	900
GAAGTGGGAC ACGGTGCAAA CTCTAACATT CCTGCTCAGG TAGTAGAATA TCTGGCTGTG	960
GATATGGGAG CCATGGGAGA TGACCAGCAA ACAGACGAAT ATACAGTGTC TATCTGTGTC	1020
AAGGATGCTT CTGGACCTTA TCACTATGAC TTCCGTCAAC ATTTGGTGGC TTTGGCGAAA	1080
GAGCAAGATA TTCCATTTAA GCTGGATATC TATCCATTTT ATGGTTCGGA CGCTTCAGCG	1140
GCTATGTCTG CAGGGGCAGA AGTCAAACAC GCCCTTCTCG GTGCTGGTAT AGAGTCTAGC	1200
CATTCTATG AGCGTACCCA TATTGACTCG GTGATCGCAA CAGAACGAAT GGTTCGATGCT	1260
TATCTTAAGA GCACGTTGGT GGACTAATAT GTGCCTTATT TGTCAGAGAA TTGACCTCAT	1320
CAAGAAGGAA GAAAATCCTT ACTTTGTCAA AGAGTTGGAA ACAGGCTATC TTGTGGTTGG	1380
AGACCACCAG TATTTTGAAG GCTATAGTCT CTTTCTAGCC AAGGAGCATG TCAGCGAATT	1440

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GCACCATTG AAAAAGGAGA CAAGACTCCG TTTTCTAGAA GAAATGAGTT TAGTCCAAGA	1500
GGCAGTTGCC AAGGCCTTTG CTGCTGAGAA AATGAATATC GAACTGCTAG GAAATGGCGA	1560
TGCTCATCTT CATTGGCATC TGTTCACG ACGGACAGGT GATATGAATG GTCATGGTCT	1620
CAAGGGTCGT GGACCAGTCT GGTGGGTTC CTTTGAAGAA ATGACAGCAG AAACCTGCCA	1680
AGCAAAACCG GATGAGATTA AAAGATTAGT CAAACGTTTA TCGTCAGAAG TAGATAAACT	1740
ATTAGAAATA AAGGAGTAGA AATGAAGAAA AGATACCTAG TCTTGACAGC TTTGCTAGCC	1800
TTGAGTCTAG CAGCTTGTTT ACAAGAAAAA ACAAAAAATG AAGATGGAGA AACTAAGACA	1860
GAACAGACAG CCAAAGCTGA TGGAACAGTC GGTAGTAAGT CTCAAGGAGC TGCCCAAGAG	1920
AAAGCAGAAG TGGTCAATAA AGGTGATTAC TACAGCATTC AAGGGAAATA CGATGAAATC	1980
ATCGTAGCCA ACAAACACTA TCCATTGTCT AAAGACTATA ATCCAGGGGA AAATCCAACA	2040
GCCAAGGCAG AGTTGGTCAA ACTCATCAA GCGATGCAAG AGGCAGGTTT CCCTATTAGT	2100
GATCATTACA GTGGTTTTAG AAGTTATGAA ACTCAGACCA AGCTCTATCA AGATTATGTC	2160
AACCAAGATG GAAAGGCAGC AGCTGACCGT TACTCTGCCC GTCCTGGCTA TAGCGAACAC	2220
CAGACAGGCT TGGCCTTTGA TGTGATTGGG ACTGATGGTG ATTTGGTGAC AGAAGAAAAA	2280
GCAGCCCAAT GGCTCTTGGA TCATGCAGCT GATTATGGCT TTGTTGTCCG TTATCTCAA	2340
GGCAAGGAAA AGGAAACAGG CTATATGGCT GAAGAATGGC ACCTGCGTTA TGTAGGAAAA	2400
GAAGCTAAAG AAATTGCTGC AAGTGGTCTC AGTTTGAAG AATACTATGG CTTTGAAGGC	2460
GGAGACTACG TCGATTAATA CTCTTCGAAA ATCTCTTCAA ACCACGTCAG CGTCGCCTTA	2520
CCTACTGACT GCGTCGGTTC TATTCACAAC CTCAAACAG TGTTTTGAGT CGATTCTGCA	2580
GTTTTATCTG CAACCTCAA GCTGTACTTT GAGCAStGCG GCTAGCTTCC TAGTTTGCTC	2640
TTTGATTTTC ATTGAGTACA AAAAGTAAAC TTTTCTCTTG CAATTCCAGA TAAATAGTGT	2700
ATAATGGATG GGTATGTGAA AAACATACTT GTGGGAGGTA AAAATCTCTA ATTACCGCCA	2760
AAACCACAAA GGAGGATTTA AAAATGGCTA AAAAAGTCGA AAAACTTGTA AAATTGCAAA	2820
TCCCTGCTGG TAAAGCTACA CCAGCTCCAC CGGTGGACC TGCTCTTG	2869

## (2) INFORMATION FOR SEQ ID NO: 131:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 6186 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 131:



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CTGAATCCCT TATAGGAGTC CAGTAACTTT TTAGCCTCTA CTTTGCCTTC ATAGGCAGCT	60
TCAACATCAT TAAAAAAGA AAGCACTGAA GCAAGTTCTT CAGTGCTCCA CGACAAATCT	120
AGTGGGTAAC TATACTGTTT GTTCATTAAC TAATACCAGC TCTCATTCTT GCTTCTTTTA	180
GTTCTTGCTT ACGATAACTA CGAGGGAGAA AAGCACGAAT CTCATCTTCA TTAACCCTGA	240
TTTGCATACG CTTGGCATCA ATAATAATTG GACGACGCAA AAGACTAGGA TACTGCTCAA	300
TCAAATGAAG CAATTCCGAT ACCGAAATAC TCTCTACATC AATATTCAAT TTTTGAAAAA	360
TTTTTGAACG AGTTGAAATG ATGTCATCAG TACCATTTTC GGTCAAGGAA AGGATGTGTT	420
GCAATTCTTT TCTTGTTAAA GGACTGGTCA TAATATTGTG TTCCACAAAG GGAACCTATG	480
TTTTTCTAAC CAGGCCTTAG CCTTACGACA TGATGTACAG CTCGGTGATA GAAATAGTGT	540
AATCATGCTT TTCTCTCTT ATCTATACTT TGCTACTTCT ATTATACAAA AAAATAAAGC	600
GCTTGACTAG GGATTTTTAG AAAAAAGCC TATTTTTTCA AGAAAAATAG GCTTTTTGCG	660
AACGATTGAC ACAATTGGAT TTGGTTAATT CACTCTTAAC GATGGTTTTA AACGATATAT	720
ATTTTTATAT ATGTAAATTA AAAACATCTT TCCTTTCACT TCCTACGACT TTTGAGATAC	780
AGATAGCCAA AGAAGTTTTC ATAGAGGGCA AAAAAAGGGA GGAAGGCATG AAGAAAGAAG	840
GTCTCTGGCA AAATCATAAT AACAGGATCC TTGGCTGGAT CAAAAAGCCA GGTATCATCT	900
CCCACAAAGA GAATTTGATG GAAAAGAGTA AAGAAATGGT CAAAACCAAT CAAAACCTCC	960
CCAAGTCCAA TCATCACAGG TAAGACTACT AGAGCCAGGA GACTTTTTTCG ATAAAGAGAC	1020
AAAAAGTCCT TTTTCAAT CCTATTGACA AAGACATAGA AACTTGGCAG TGTCAGTAGA	1080
GCTACTAGCT GAACCAAATG AAAGAGATTC TTGACCACTG CGAAATGGTG CAGACCAGCT	1140
GCTGACGAAC GAAAATCAGG CATCTGTAAG ACCTGACTAA AAGGATTGGT CAGATAATTC	1200
ATCAAGATAT GAAAATTGTA TTGAATGGTT TCTGGTTTTA GATAGACTCG ATTCGTTAAG	1260
TTTAGCCACT GAATCTCCAT AGGATAGAAA ATCCAAGCCA GATAAATGGT CAGAAGGATG	1320
GAGAGGGAGA GGAGAAAGAG CATAGAGCCC CAAAAGATCA ATTTAGTTTT CATCAAAATC	1380
CCACTCCGCA AGGCTAGAAA CCACATGTGT CGGTGCGATT GGCAGGCCAG CTACTTCTTC	1440
TGCCTTAGTA AAACCTGTCG TCACCAAGAG CGTTGGAATG CCATTGTCAA TCCCAGCCCC	1500
AATATCAGTC AAATAATTGT CCCCACCAT GATTAACCTC TCACCTTCCA AACCTAAGTG	1560
CTCAACCGCC TTGTCCATAA TGATGGCATT TGGTTTTCCG ATATAAACCG GCTTCACTCG	1620
TGTCGCTACT TCAAGCAGCG TAATCAGTGA GCCAGCACCT GGCAAAAGAC CGCGTTCCGT	1680
CGGGATGTTG AGGTCAGGAT TGGTTCCGAT AAAATGGGCA CCCTTTTGAA TAGCAAGAGT	1740

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TGCTGTGGCA AATTTTTCAT AGTCGACTTG CCAATCCAGA CCAACTACCA CGTAGGCAGG	1800
TTTTTCCTTG TCTTCCACAT AACCAGCCGC CTTGATGGCT TCCTTGAGTC CTGCTTCTCC	1860
GACGACATAG ACGGTCTTTT CAAGCCCCAA ATCATTCATA TAGTCGATGG TTGCCAAAGT	1920
CGCTGTGTAG ACAGTCGATA GGGGCGTATC GATATTAAAA TTCTGAGCCA ACATCTCCTT	1980
AACACTCTCT GGAGTGC GGG TTGTATTGTT GGTACAAAG AGATAGGGAA TGTCCCGCTT	2040
TTGCAATTCA TGAACAAAAG TCTCTCCAGC AGGGATTCCG TCTTTCCCTT TATAAATGGT	2100
TCCGTCTAAA TCAATTAAAT AGCCTTTATA TTTTCATCTAT TTCTCCCTAA GCCTTTTTTA	2160
TTTCTTGCCA AGTAATGATT GCTTGGGCAT TGATAACCCC ATCACTTGTA ATTTTCATGCT	2220
TGCTTCCAG TCCAGTCCGT TCAACAGCCG ATGTAATCAC CCCACCTGGT CGAACTTCCT	2280
TGACATACTT GAGGTTGATT TTCTTGGGAA TATAGTGGGT CAAAAATCC GCTCCCATGA	2340
CCTCAAAAAT CCAGTCCAAG TATTTACTGT TATTGACATG ACCATTCATA TCCAAGTCGT	2400
AAAAACGAAC ATGGTAATCC TTGCTGATCG GTTCTTCCAA GGA CTCATAC TTGGGTCCAC	2460
GGATAAGTTT TTTATCAAAA TCAGACTGGT AAGGAGCCAC AATCTCAGGT TCAACAACAT	2520
GGACTTTTCG ACTGTCCGGG TCCATGAGAA CAAAGGTCCG CATCATGTGG ATGAGCTCCT	2580
GCTCCGCTTC ATTATAAATA GTAAAGCGAC GGTAGCAAAA AAGTCGATTG TAGCTCAAGG	2640
CTTCCGTTTC GATGGTAATT TCTTCCGCAA AACGAGGCAA ACGAACCACC TCAATATCAT	2700
ATTCTACGAT AATCCAGACC AGATTATATT CTTCCAAAAT GGCCTTATCA CTAACCTCCA	2760
GTTCAATCGA CTGCATCCCT GAACTTGCA GTGACAGCAA AATCACATCT GGAAGTTTGA	2820
TATGACCGTT CATATCAGCC ATATCAAAAG GAATTTTCAT TTTTCATTTGA TAAGTTAAGC	2880
CCATGATCCT ACTCCAAAAT AAATCGTTCT GCTACAGTAT CTCCCAAAAA GAGACCTCTC	2940
TTTGTCATGC GAACGTGGTC ACCCTCAATC TGCATGAGGC CTTGTTGAAC CAAATCTCTG	3000
ACAATTTCTC CATAAAGTCC AGCAAAAGAC TGTCCAAATT TTTCTCATA TCGCGCCATG	3060
GAAACCCCGG ATTTCTTGCG GAGTCCCAAG AACATTTCTT CTTCCATTTG CTCCTTTTGA	3120
CTCAGGTGAT CTTCTGTAAT ACAAGCATTG CCTTCCTCAA CCGCACTGAG ATAATGACGA	3180
ATGGGACCAT GATTTTATA GCGTACTCCA TTGACATAAC CAGATGCCCC TGCACCAATA	3240
CCATAGTATT CAGCATTTGC CCAGTACATG AGATTATGAC GACTTTCAAA ACCGGGTTTG	3300
GAGAAATTAG AAATCTCATA ATGCTCAAAA CCCGCTCGCT CCAGCTCTGC AATGATGTAC	3360
TCAAACATCT CCCCTTCTAG TTCCTCCTTA GGCAGAGGCA ATTTCCCACG TCGCATCCGG	3420
TTCATAAAGA CCGTATGGTT TTCTAAAATC AAATATACA AACTCATGTG GGAATATCC	3480
AATCCAATGG CTTTAGCCAC ATTTTCCTTT ACTTGCTCCA TGGTCTGACC AGGCAGAGCA	3540

TAAATCAAAT CAATGGAGAT ATTGTCAAAA CCAGCCAGTT TCAGGCGATC GATATTTTCA	3600
TAAATATCCT TCTCCAAATG ACTGCGCCCA ATCTTTTTTCA ACATCTTATC ATCAAAGGTC	3660
TGGACACCTA GCGAAACACG ATTGACAGCC GAATTTTTTCA AAACAGCTAT CTTATCCGCA	3720
TCCAAATCGC CTGGATTGGC TTCAATGGTC AACTCTTCCA AGACAGACAA ATCCAAGTTT	3780
TTAGTCAAGC CATTCAGTAA CACCTCCAGT TCGGAGCCG ACAGGGCTGT CGGTGTTCCA	3840
CCACCGATAT AAAGGGTTGA CAACTTTTCA ATATCATAAG AACGAAACTC TTCCAGCAGA	3900
TGCTCTAAAT AGCTGTCGAC TGGCTGATTT TTGATGAAGA CCTTTGAAAA ATCACAATAA	3960
TAACAAATCT GGGTACAAAA TGGGATGTGC ACATAGGCTG ACGTTGGTTT TTTCTGCATA	4020
GTAATTATTA TACCACAAAG ACTAGATTCC AGATAAAAAT CACCATCCCC AGATACATAG	4080
TCCGTCCGGA GATGGTGATG GTTTATTCTT CTGTTATATC AATCACAATC TCTTCTGAGT	4140
CATCAAGAGC TTCGGCTTTT TCTTGCCATT GCTCCTTGAG ATTATTTAAT TGATTTTTTG	4200
ATGCTTCTGT CGCTTGAAAA GCATAGGATT TAGTTTGAGC AAGTATACTG TCCACAGTGA	4260
TTTACCTGA CTCAACCTGT TCTTTTGTTT TCAGAACAAA ATCTGTAGCC TGCTCCTTAA	4320
CTTCTGTCAG TTTTTCACAG ACTTGCTCCT TGGCATACTC CGGATCTTCT CTCAAATCAT	4380
CTAGAAAATC TTGAGCCTGA CTGCAAACCT GTTTGCCCTT ATCACTTGTT AAAAAACAAGG	4440
CAAGAGCTGC ACCTGAAACG GTTCCTAAAA GGATTGAGGA TAATTTACCC ATAAGGATTC	4500
TCCTTTTTTA TTTTTGAAA AATTTACTTG CAAGACGAAG AGCTGACAGA CTTGCACCAG	4560
TCTTGAGTGT TTTTGAACCA GCTGATGAAG CTTTCTTGCT CAAGACACGC GCATGGTCAT	4620
TGAGGTCTGA AACAGATAGA GATAAATCTG CAACAGCACT GAAGAGTGGA TCAATCGTAG	4680
CCACCTTGAC ATTGATATCA TCTGCCAAGA CATTGACCTT AGCCAACAAC TCATTGGTGT	4740
GATGCAAGGT CACATCCACA TCTGAAGTCA AGGTTTAAAT CGTCTTTTCT GTTTCATCGA	4800
TGACACGACC AAGCTTTTGT ACAGTAATGA TCAGATAGAC CAAAAAGACA ATCAAAGCTA	4860
GGGCAACAAG AATATATGCA ACTTCTAACA TTTAGTTTTT CTCCTCTGTA ATATAGTAAG	4920
GGGCCTTCTT TCGATTTTGA TAAATAACGA TCATTATACC GAGACCGATA AGGACAACCTG	4980
ACAGCCATTG GGACACTCGA AAGCCGAAGA ACATGAGACT ATCTGTTTCG ATACCTTCGA	5040
TAACCATACG ACCGAAACCA TACCAATCA AGTAAAAGGC CGTGATATGA CCTCGTCTGA	5100
GACTCTTCCA TTTCCGTCTA AAAATCAGAA TCAAGGCAAA GCCAAGCAGA TTCCATAGAG	5160
ACTCATAAAG GAAAGTCGGT TGACGGTAGC TCCCCTCAAT ATACATCTGG TCACGGATAA	5220
AGCCAGGTAG ATAATCCAGA TTATCCACTG TTGCACCATA AGCTTCTTGG TTAAGAAAT	5280

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TACCCCAACG CCCCAAACCTT TGAGCAATCA TAACGCTAGG CGCCGCAATA TCTAGAAAAT	5340
CCCAAGTATT GATGAGTTTA CGGTCAGCAA AGATATAGAG CACAAGAGCC CCAGTTATCA	5400
AACCACCGTA AATGGCCAAA CCACCATTCC AAATGGCAAA AATCTCTCCT AAATTCTGAC	5460
TATAGTAATC AAATCGGAAA ATAACATAGT AGAGACGAGC TCCTAAAATA GCCAAGGGAA	5520
AGGCTACTAA GATAAAATCT AAAATATCGT CTGGTATGAT CTTCTTTCTA GGTGCTTCTT	5580
TCATGGTCAA ATAAACCGCA AGAATCAAGC CTGTCACAAT ACATAAGGCA TACCAACGAA	5640
TGGCTAGGGG TCCTAGTTGA ATAGCAATTG GATCAAGCAT TTTGCACCTC ATTTCCGAGCG	5700
ATTAGACTTG TCAGTCGTTT GTCGAACAAA CGGGTCGCAT CAAAGCCCAT TTCCTTGGCA	5760
CGATAATTCA TGGCAGCTGC CTCAATCACA ACAGAGATAT TACGACCTGT TTTAACTGGA	5820
ATACGAATAC GAGGAATGTA CGCCAGAAAC TTCAAGTTCC TCTGCATTAT TTCCAAGACG	5880
ATCAAAGGTC TTATGCGTAT CGTAATTTTC CAAATAGACA GCAAGCTGAA CCTGTGAAGA	5940
ATCCTTGACA GCACTCGCAC CGTAGAGACT CATAACATCG ATAATACCAA CCCCACGAAT	6000
TTCAATCAAG TGTTCAAAA TTTCAGCTGG TTCACCCAG AGAGTAATCT CATCCTTGGC	6060
AAAGATATCG ACACGGTCAT CGGCTACCAA ACGGTGACCA CGTTTGACAA GCTCAAGACC	6120
TGTCTCGCTC TTACCAATTC CACTATCTCC CTGAATCAAG ACGCCCATCC CATAAATATC	6180
CATCAA	6186

## (2) INFORMATION FOR SEQ ID NO: 132:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 9541 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 132:

GAAAATCACA ACCCTTTTTG CAAAATTTT GAGATTATTT TCACAAACTT GATTTTTC	60
AGTATACTCA ATAAAAATTA AAAAAATCCA CTACGTCAAG GCGAGGCTAA TGTGGTTTGA	120
AGAAATTTTC GAAGAGCGTG AATGAGTATC ATCTATAGTA AAATAAAAAA ACTGAACAAT	180
TTGGTTGGGG ACAGCCAAAC CAATTTCTCA CAATGTTTCA GAAACAAGGG TGTGCTATTC	240
CAATTTCAGC CTAATAAAC TGTATAGAT TGCTGAAACA AAGCTAGGT AAAAGTCTTC	300
ATAATAAAAA GACCTCCTAT CAAGTGTTCA AAACTTTTGA TAGGAGGTCT TGTTTTGTGA	360
AAATATTTAT CAAATTTTCT ATACAAGTGA GCTGTTAGCC AGGTTCTTTC TATTCTTTCA	420
ATTTCAATGA ATGGATTTT TACTAATACT CATAACTGGG AATTTGTCTG TGTAATAATA	480

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GCGAGATAGA TGGTATTTAT AAAACACTCA AGACAGCTAG ACTAATATCA TTTAAAACAT	540
TATCTTCTTT TGAGCGACTG TTGGTTACCA ACATAGCTAA ATTCCTGCA TTTTCAAATT	600
GATAGGGTTC TGATTTAGCA TTCACAACCA CCAAGAGGTG TTCTTTGCCG TGAAC TTCAT	660
AGATAAGGTA GCCGCTATGT TCAATCGCAG AATGCACAAA GACATGATGG TAAAT TTCAT	720
CATAGCTAGA GTAAGAAAAG GCACCAGTTT TTGTCTTCAA TCGGATGACT TGACGGATAA	780
ACTCAATACT GTCTTGACGC TCATTAATCA AGTTCCAGTT CACTTGGTTC ACACTGTCAG	840
GAGCATTATA GCTATTCATC GCACGCTCTC TATCATCATG GGTCAACTCA CCATTTTCAC	900
CAGTCGCAAC CAGTTTGGTA CGACCAAATT CTTGACCGAT TTCCATAAAG GCCATCCCCT	960
GCATGAGCAG ATTATGGCT GTGGCAGTTT CGACCTTGGC CATGATTGTC TCTGAACTTT	1020
GGTCTGGATG AAGGGTTGCC AATAAATCGT GAAGATTGTA ATTGTCATGG GCTTCTACAT	1080
AGTTAAGCAC CTGATTGGA TGTGTATAGC TTCCTAATTC ACGACTTCCT AGGATTGCTT	1140
TAGCTAGAAT TGGCTCTGTC GCAGCACCAC TGACAAAACC TGACTTGATA GCACCATAAA	1200
CTTCTCCCCC TTTGACAGCA TCGCGCTGAT TGTCAATAAA GAAACCAATA TTTGGCATCT	1260
GGTAGGCATT GTCCTTCTTG GCCTTATCAT AAGGGGCAAG ACCTGTTCCC ATATCCCATC	1320
CTTCTCCATA GAGGATAATG TTGGAGTCGA TTTCATCCAA GCTTTGACGA ATCATCTGCA	1380
TGGTCTTGAC ATCATGAATC CCCATCAAGT CAAAACGGAA GCCGTCAATA TTATATTCCT	1440
GCACCCAGTA TAGAAGAGAA TCAATCATAT ACTTGCGAAA CATTTCTGTG TCACTGGCTG	1500
TTTCATTTCC AACACCCGTT CCATTCTGGA AGGTACCATC TGGATTGATA CGATAATAGT	1560
AATCAGGGAC TGTGTTTGG AATGGTGCAT CAACAACCTGA GAAGGTATGG TTATAGACTA	1620
CATCCATAAT GACTCCAATA CCCGCATCGT GATAAGCTTG AACCATCACC TTCAAATCAC	1680
GAATGACCTG AGCTGGATCA TCTGGATTAG TTGAAAACT AGTTTCTGGC GCGTTATAGT	1740
TTTGTGGATC ATAACCCAG TTGTAGGTTA CATTTCCATC CTCATCGTAT TCTTTATGAC	1800
GCTCTGCAAT TGGTTGCAAT TGAACATAAT TGTAGCCCAG CTTCCTTGATG TAATCAAAAG	1860
CAGTTGACTG GCCGTATTGG TTAACGTTC CAGCCTGAGC AGCACCCAAG AAAGTTCCTC	1920
GAAGATGTTT ATCTACACCC GATGTAGGTG ATTTAGTCAA ATCACGAATG TGCATTTTAC	1980
AGATAACTGC CTTACATGGA TTTTCCAAGC GCCAAGTAGC CTCCGAACCG TGCTTAACCT	2040
CGAAGTTTTC AACTTGCTTT TCTACATGGC TCAGAATAGC TGAACGTTTG CCATCAGGGC	2100
TGGTCGGAT TGTATAAGGA TCACGTGTCA GTGTTTGCTG ATGAGGGAAT TGGACTTGAT	2160
ACTGATAAGT CTTACCTACC AAATCTTCTT CAACATCCAA ACTCCAGACA CCGATTGTAT	2220

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TGTCCTTATG ATTATAAGAG TAGCTATTGC CTCTTTTCAT CTCAAAAGTC TTCCAAACGG	2280
GTGCATCATT AGCAGCTGAT TCATAAACGA CAACTTGCAC TTCTGTGCT GTAGGTGACC	2340
AGAGAGAAAA ATGAGCCTGA TTGTCCTCTA CACGGCAACC CAATTCTCCT TGGTAACCCC	2400
AATGATGATC AAAACTAGCA CTGTTAATGG CCTTATCAAA GGCAAAAGGA TTTTGATTTT	2460
TATAGAAAGG ACTGGCAATA GCAGGATTTT CAGAGTAATA AATCCTATCA TCGCCTTCCA	2520
AAATCCAGAC CTCTGTTAAT AGGGGATAGT GATTAAAACG GATAGAATAT TCTTTACTAG	2580
TTTGACCTGT ATGAACCACA AAATTCAAGC TTTCTATAAC ATGTGAACTT GGGTGTTCAA	2640
AGCTAAATAA AGCTCCAAAA TAATCTTCTT TGTAGGTTAG CAAATCAATT CGTTGATCCT	2700
GACTTTTAC AAAGGAGCAA GTGTCATATT CTCCATTCTT ACGATGGTAA TGAATGCGCA	2760
TAGGGTAGTT ATACATTTTT TATTTTCTT TTTTACTTTG TTTCTATTC ACTAATAAAT	2820
TTTTGTCAAT CTCGTCTCAA TTAACAGACA TAGTCATATT CTCTAAACTC TGTTTTTAAA	2880
CGATCCATTA CAAACTTTCT AGCCATGCCT CATCTCTGAC CTGGATACCA AGTTCTTGTG	2940
CTTTTGCAG TTTACTTCCA GCGTCTGCAC CTACCACGAC GAGGTCGGTC TTTTAGAAA	3000
TACTACCTGT CACTTTGGCA CCCAGACTTT CGAGTTTACT TTTAGCTTCT GAGCGCTTGA	3060
GTCGTTCCAA TTTTCCTGTC AATACCACGG TCAAACCTGA CAAGGCCGCA TCCGCTACTA	3120
CCGTCTGTCC TTTATAGTCC AGATTGACCC CAGTTTCTTT CAATTCTCTG AGCAGAATTT	3180
CAGAGCCTTC TGTCGCAAAA TAAGTCTGAA GACTTTTGGC AATCACGCCA CCTAGACTTT	3240
CAATACTAGC CACTTCCTCT GAATCTGCCT GAGACAGATT TTCAATTGAA TGGAAATATT	3300
GAAGTAAAAG CTGACTAACC TTGCTTCCGA CATGACGAAT TCCCAAACCA AATAAGAGCT	3360
TCTCGGCAGA ATTTTCCTTT GATGCTTGA TAGCCTGATA CAGTTTAGCA GCGGACTTTT	3420
CCTTAACTCC CTCTAAAAGG AGGAAATCCT CTTCTTGCAA ACGATAAATA TCCGCCACAT	3480
CCTTGACTAA ATTAGCAGCA AAAAGCTTCT CAACAATAGA TGGACCAAGG CCTGTAATAT	3540
TCATAGCATC ACGAGAAGCA AAGTGAATCA AGCCTTCCAT GATTGAGCA GGGCAACGCG	3600
GATTGATACA ACGTAGGGCC ACTTCATCTT CAAAGTGCAA CAAGTCAGAG TTACAACCTG	3660
GACAGTTTGT AGGGATATCT AGTTTTTCTT CAGAAACCCG TTTGGACTCT ACCACACGTA	3720
AAACGGCAGG GATGATGTCA CCAGCCTTAT ATACAATGAC CGTATCGTCT TTTCGGATAT	3780
CTTTTTCAGC AATATAATCT ACATTGTGCA GGGTCGCACG GCTAACAGTC GTACCGGCAA	3840
GTTGTACTGG TGTTAGATTA GCAGTTGGAG TTACAACACC GGTACGGCCA ACTGTCCAGT	3900
CAACTGATAA GAGTTGAGCT TCTTTTCTT CGGCAGGGAA CTTGTAGGCT ACTGCCACT	3960
TTGGAGCCTT AACTGTAAAA CCAAGTTCTT CTTGACTTGC TAGGTCGTTG ACCTTGATTA	4020

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CCACTCCATC AATATCGTAA GGCAGATTTT CCCGTTCCCTG TCCTACTTCT TGGATAAAAT	4080
TCCAGATTTC ATCTATGTTT TCAGCCAAGA TTCGCTTAGG ATTGACCACA AAACCTAGTT	4140
GTTCTAGGTA CTTCAAACCC TTTTCTTGGC TATCACGAGT TGAAGGGCTG GCTTCTTGAT	4200
AGAGAAACGT TGCAAGATTA CGCTTGGCAA CTACTGCTGT ATCCAACGA CGCAGAGTTC	4260
CTGCTGCCGC ATTACGAGGA TTAGCAAATT CAGGCTCTCC ATTTTCTTGG CGCGCTTGGT	4320
TAACTTGGTC AAAGGAAGCG CGTGGCATGT AACATTCCCC ACGAACTGTG ATATCTAGTT	4380
CTTCTGGCAA AGTCAAAGG ATGTCCTTAA CACGCTTGAG GTTTTCTGTG ATATTTTCAC	4440
CAATTGAACC ATCTCCACGT GTTACCCAG CAACCAAAT CCCCTTTTCA TAAGTCAGCG	4500
AGATAGATAA GCCATCGATT TTCAGCTCAC AAATATAGGT CGGATGAGCC ACTTCCTTAC	4560
GAACACGCGC ATCAAAAGCA TCTAGTCTCT CACATGAAAA AGCATCCTGC AAACATATAA	4620
GAGGATACTG ATGACTGTAT TTTTCAAAC CATCTAAAAC CTTGCCACCA ACACGATGAG	4680
TCGGAAGTGC TGCTAGCACT TGCTCTGGAT AAGCAGTTTC TAACTCGACC AACTCACGGT	4740
AAAGGCGGTC ATACTCACTG TCTGAAACCG AGGGATTATC GCTGGTATAG TACTCAGTCG	4800
CATAGCGATT GAGCAAAGCG ACTAACTCAT TCATTCTTTT ATTCATAAGA CCATTTTACC	4860
ATAAAACAAG CCCTCCTCAC AAACGAGAAG GGCGGAAAAA ACACCTAGTT TGAAATTATT	4920
TTTGAACTC AAGCAACCTT ATATCAATTT TTCAAATGA GTTCGAACAT ATCCGAGAGC	4980
TAAGAAATAT AAGGCTACAA CTCCAAGTCC AATAATCAAG AAAGAATAAA GATGGACACT	5040
TGGCAAGACT GTCATAAATC CTTTGTCAAT AGGCATAAAT AGAATAGCTA AGGTAAAAAT	5100
TGTACTCAGT ACTCTTCCAA GAAATTCGCT CTCAACCTTG GTTTGTACTT GAGTAAAAAA	5160
GTGAATATTA AAAATCGTCA TAAACAATTC ACAAACATAA TTTCCAGAAA AGGAAAGAAA	5220
AGTTGGAAGT GGTAATCCCA TCATAAAAAC TCCGACACCT GTCAAAGCCA GTAAATCAA	5280
AAGATTATAA ATATTAGCTT TAATTTTACT AGCTAGAAGA GCCCCAATGA TGGAACCAAT	5340
AGCCCCATA GTTAAATAC TTGCATAGGC TCCTTCTGAC CCGTAAAGCT GATTGAAAAA	5400
GGGAAGTAGA AATTCAAAAG CTGCAAAAAA GAAATTAACG CTGGAAGCTA CCAGCAAAAG	5460
GAAGAAAATT TCTTGCTGAT GCCAGATATA GTGTAACCCA TCCTTGATAT CTACAAAAAT	5520
ATCTCTCCCA GTAAAAGCCT TTTTCTCTTG AACTTTTGCT TCCTCTTTTG GAAGGAAAGC	5580
CACTAGAACA AAAGCAATGA AAAAAGTCAG CGAGTCTAGC AGTAGCGTCA TATGGAGACT	5640
TGCAAACTGT AAAACAAGGA AGGAAAGAAC AGGAGAGCTA ACACCTACAA CCTGCAAAAC	5700
CAGCTCTAAG CGAGAATTAT AGATCACAAT CTCATCTTTC TCCACCACTT CAGTTATGAT	5760

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AGCTTTATTG	GCTGTGCGAG	AAAAGGCAAA	AGCAATAGCC	TGCACAATGT	TAGCAACAAT	5820
CAAAGCGCCA	ATCATCCAGC	TATCATTCCT	TATGAAAGAA	ATAGCCAGAC	AAAGAATCCC	5880
ACAAACAAGA	TCTGCCGTCA	TTAAATCTT	ACGACGAGAA	AAACGGTCTG	AAATAACTCC	5940
GCCAAAGGGA	TTGACGAGAA	TAGATGTGAC	GAGCTCAGAA	ATCTGATACA	TTCTTAAAC	6000
TGTCTGTCCT	ATAGTCCCCA	TAGAAGCCAA	CCAGACACTA	TTTCCATAAT	CATAGAGCAT	6060
ATTTCCCAT	TTATTGATAG	CCCCACGGCT	AATCAACTGC	ACTGCATAGC	GATTTCATTT	6120
AAAGCTCCTC	TCAAAATTTG	AAACTATTGT	ATCAAAACCG	AAAGGAGCTT	TTTATTTTTT	6180
CCCTTATTG	GGAAAATTAA	CTTTTGACAA	ATTTTTCGTA	GTGTTCTCGA	TAATAGGCTA	6240
CTTGCTCTGG	AAGACCTAAC	ACATCAAAAA	TATGCATGGC	CTCTTGCAATC	TGCTTACAGC	6300
CTTCTTTACA	CTGTCTTTT	TGATATAAGG	CAAAACCTTT	TAAATAATGG	AAAACATTAC	6360
GCTCATAAAG	CTTAATACCT	TTGTCAATAA	TCTTCTCTGT	ATAAGCCTCA	AAATAGTTGG	6420
CATTATAAAA	AGAAGAATGC	TCTAAACAAT	GCTGGTAACA	ATTGAGGGCC	AAAATCAACA	6480
CTAATCTCTT	ATGGCGACTA	ATCTCTTGGT	AAAATTCCTC	CCTCTCCATA	ACTTCTCTAC	6540
CAATCCGAGT	GACATAGTCT	ACATCGTAGA	AACTATAGAG	GTTACCGAAA	AGAATCAACT	6600
CATACATGGT	CCATTCTTCT	GTTTTGAAGA	GATAATCTGC	TACCTTACCC	AAATCATCCT	6660
GCTTCATATC	ATAACTCGCA	TCTCTTTGAC	AAATCAGACC	TTGTAGCAAA	ATCCAGTTCA	6720
GCTCAAAATA	AAGGGGAGTC	GTCGAACTCT	TAGACTTTTC	AAGTTGTTCT	CTTTGAAGCT	6780
TTTGAAAACC	TGCAATATCG	TTTGAATAGT	AAAGTGGGAT	AATCTGTGCC	ATCATAGACA	6840
CATGTTTCATG	ATTATGAAAA	TTCTTGCCT	TATCCATGAA	ATTTTCGATT	GTTACATGAA	6900
TGTTATCCAA	AATCTCAAAG	AAACGGGAGA	CTGCCAGGTC	AGACTCCCCA	AGCTCAAAGC	6960
GAGATAACTG	ACAGGTAGAG	CAGGATTCGC	CTGCTGCTTC	CTTTAAAGAA	TAATTTCCAC	7020
TTGTTGAAAA	TTACAGAAAT	ACTTTTCCAA	GATGTTCCAT	CTTTACACCT	GCTCTGATAA	7080
TTCTTCCCAC	TCAAGCATAG	CTTCTTCCTG	ACGATGGCTG	ATTTTGTCCA	GCTCAGCCTG	7140
TAATTCATG	AGTTTGTCCG	CATCGTTTGT	TTCCAACATT	TGTTTCAGAAA	TGGCTTGGCT	7200
TTGACTTTCT	AGCTCTTCAA	TTTCAGCTTC	TAGACTTTTCG	ATTTGTCCGA	TGAGTTTGCG	7260
AACCTCTTTT	TGACTTTCTT	TCTGGGCCTG	ATAGTCAATTG	ACTGGACTTG	CTTCTTTTGC	7320
TTGATTGCTA	GTTGAAGCTT	CCTCAGTCTG	ACTCATTTCT	GCTGTTGCTT	TCTTCTCAAC	7380
ATAGTAGTCG	TAATCTCCAA	GGTAGAGAGT	TGAACCATTC	TCAGACAATT	CCAAAACATG	7440
AGTTGCCACA	CGATTGATAA	AGTAACGATC	ATGACTGACA	AACAGCAAGG	TTCCATCAAA	7500
GTCAATCAAG	GCATTTTCTA	GCACTTCCTT	ACTATCAATA	TCCAAGTGGT	TGGTCGGCTC	7560



905

ATCCAGAATC AAAAAGTTAT TGTMTTCCAT AGACAATTTA GCTAAAAGCA AACGAGCTTT	7620
TTCGCCACCA GATAGCATGC CGACTGATTT TTAAACATCA TCTCCTGAGA AAAGGAAGGC	7680
TCCAAGACGG TTGCGGATTT CAACTTCTGG TGTCAGTTTG AAATCATTC AGAGTTCATC	7740
CAGCACCGTA TTACTTGGTG TCAGCTTGCT TTGGGTTTGG TCATAGTAAC CAACCTCAAC	7800
ATTAGCGCCA AAGCGCTTTT CTCCTTGAT AAAAGGAATC TGGTCCACAA TAGACTTGAT	7860
AAAGGTTGAC TTGCCGATAC CATTTGGACC AACGATAGCG ACAGCATTCA TCTTACGAAG	7920
ATCTAGGTTA ATCGGTTGTG ACAAGACTTC CCCGTCATAG CCAACAGCTG CATTTTCAAC	7980
AGTCAAAACA ACATTGCCCG ACGTTTTTTC AGACTGGAAG GTCATGTTGG CTGATTTCTT	8040
GCCAGCTTCA GGCTTGTC AAGCTTCCAT TTTTCCAGT TGTTCACGGC GAGATTGAGC	8100
ACGTTTAGTC GTTGAAGCAC GAACTAGATT GCGATTGACA AAGTCTTCCA GAGCAGCGAT	8160
TTCTTCTGT TGCTTTTCAT AGTTTTTTC CTCAGTAACT AGCTTTTGCT CCTTCAATTC	8220
GACAAAACGA GAGTAATTC CCACATAGCG ATCCAAGGAA TGCTTGGTCA AATCTAGCGT	8280
AATTGTCGCA ACCTTGTC AAGAAATAACG GTCGTGGCTG ACGATAATGA GGGCACCGCT	8340
ATAGTTTACC AAGTAATTCT CTAGCCAGGC GATGGTTTCA ATATCCAAGT GGTTAGTTGG	8400
CTCGTCCAAG ACCAAGAGAT TGGGCTTTTC AAGGAGCATT TTGGCAAGTG CCAAACGAGT	8460
ATTTTGACCA CCAGAAAGCT CAGCAATTTT CATCTGCCAC ATAGACTCGT CAAACTTGAA	8520
TCCATTCAAA ATCGCTCGAA TATCAGCTTC ATAGGTAAAG CCACCTGCTT GCGGAAAATT	8580
CTCAGATAAG CGGTCAAT CTGACATCAG TTTATCCAAA TCCTCACCAG ACTTTTCACC	8640
CATCTCCAGC TCCATCTGAC GCAGTTGTCT CTCGTCCTGA CGCAAATCAT TAAAGACATG	8700
AAGCATTTC TCGTAGATGG TATTTTCAGA CTCAAACGG CTATCTTGGG CTAGGTAAGA	8760
CAGAGAAATA TCTTTTTTCT TATTGATTTT TCCGCTAGTT GGCTCCTCTT CTCCAATAA	8820
AATCTTCAAA AGAGTAGACT TACCTGCACC ATTTTCCCA ACAAGAGCAA TCCGATCTCG	8880
TTTATCAACC TGCAGGTTGA TATTATCGAA AAGAACCTCT CCTGCAAAAG AACGTTCAAT	8940
TTTATTAGCT TGTAATAATA TCATACAAGT AGTATAGCAT GTTCCCTAA GGCATTCAAG	9000
ATAATCGTAA GTCTTTTAGT ACAACTTTTA TAACATAAAA TAACTAAAT TATGTATATT	9060
TTATATTAGA TTACTTCACT ATCTTGTTGG ATTTTCTAAC CAGCTAATCT TGTTTCAAAT	9120
AGTTATCGCA CAAGTCTATT ATTTAATTCT TTTTCATCATT TACGTACGTA TAGCAGATTG	9180
AAATAAGATG AGAACAAATC GATTGGGAAA GTAAAATTAA TTTCTATAAA TGTTTTAGCA	9240
ATTGTTTCGT ACTATTTTAG ATTCAGTCTA CTATATACAA TATTTTCGGA ACATTCAACT	9300

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TTTAACTCT ATTTATTACT AGATTTTCATA ATTAAAAAAC CTA CTGACCA AGCTAGAAAG	9360
CTTGATACAA TAGGCTTTTT AAAGACTGAT TATTTAACAG CGTCTTTAAG AGCTTTACCA	9420
GCTTTGAATG CTGGTACTTT AGAAGCTGCA ATTGTCATTT CTTTACCAGT TTGTGGGTTG	9480
CGACCTTTAC GTTCTGCGCG CTCACGAACT TCAAAGTTAC CAAAACCGAT CAATTGAACT	9540
T	9541

## (2) INFORMATION FOR SEQ ID NO: 133:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3502 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 133:

TTGACTATCC TATCATGCTT TCTAAGGTCT ACTCAAGAAA ATCATTTTCA AGTTTTTACA	60
CCTTTCTCAA AAAAGTTAAA AAATTTTCTC AAAAACGCTT GACTCTGACC TAAGGCGAAG	120
GGTTATACTA TCATTGTAAG GAGGAAATCA TGTACCATAT AAAAGAAGCT GCGCAGCTTT	180
CAGGTGTCTC TGTCAAGACC CTGCATCACT ATGACAAGAT AGGACTCTTG GTCCCCTTAA	240
AGTCGGA AAA CGGCTATCGA ACCTACAGTC AAGAGGATTT GGAACGCCTT CAGGTCATTC	300
TTTACTACAA ATATCTAGGC TTTTCTTTAG AGAAAATAGC AGAGCTGTTA AAGGAAGAAA	360
GGACAGATT ATTGCCCAT TTGACTAGGC AGTTGGACTA TCTAACTCGC GAAAGGCAAC	420
ATCTGGATAC CTTGATTTCC ACCTTGCAAA AACTATTCA AGAACAAAA GGAGAAAGAA	480
AAATGACCAT TGAGGAAAA TTCACGGGAT TTAGCTATCA AGACAATCAA AAATACCACC	540
AAGAAGCGGT AGAGAAATAT GGTCAGAAG TCATGGGACA AGCGCTCGAA CGCCAAAAAG	600
GTCACGAAGA CGAGGCTACG GCCGCCTTTA ACCAAGTCTT TCAAACCTTG GCACAAAATC	660
TTCAAGTTGG TTTACCTGCA ACAGCAACCG AAAACCAGGA GCAAGCAGCC AAGCTCTTGC	720
AAGCCATTCG CACTTATGGA TTTGACTGCT CTATTGAGGT ATTCGGTCAT ATCGGTAAAG	780
GTTACGTCTA CAACCCAGAG TTTAAGGAAA ACATTGACAA GTTTGGTTCT GAAACAGCCC	840
AGTACACGTC AGATGCCATT GCGGTTTACG TTCAGACAAA TGCAGAATAA ATAGGCTAGG	900
AATTTCTAG CCTATTTTTT ACTTCAAATC ATAAAGCCAG TCGTCACCGT TTTTGTAGTA	960
AAAGAATTCA CTGAGATCTT CTTCTAGAAA CACACGAAGC ATATCAGACA TATCATCGGT	1020
TGCAAGTTTT AGATGAGAAA GATTTTCAAA GTCCTCCAC CAACTTTCC CTTCTGCTGA	1080
AGACTGGAGT TCACCAGTAA AGTGTTCTGT CTTGTAAAAA AGGACGACAT AACGATAATC	1140

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CTTGTCGTCA TACCAGTTTT TGATACCACA GAGTTGGGGT TTGGAAATGA TCAGACCAGT	1200
TTCTTCTTTC ACTTCACGAA TGACAGCATC GACAAAGGAT TCGCCACGTT CAACATGACC	1260
ACCAGGAAAA GTAATGCCAG ACCAGTCGGG ATTAACCTCG TCTTGGACCA GGACCTTATC	1320
TCCGTTTTTA ATCATACACA TGTTAACAAA TTCCGACTGCC TCTCTTCTGT TCATTCTTCA	1380
CAACCTTTAA TCTTTAATCA TAATGCAGAC TTCCCGCCAC CCAGCCGGTA CAGAGGGCAG	1440
AAGTGATGTT AAAGCCACCC GTGTGGGCAT TGATATCCAT AACTTCGCCT GCAAAGTGGA	1500
GGCCAGGTAC CAGCTTACTT TCAAGGGTTT TAGGATTGAT TTCCTTGAGA CTGACTCCAC	1560
CCTTGGTAAAC AAAGGACTTT GCAAGGGACA TTTTCCAGT TACAGGAATT TTAAGTTCTT	1620
TAATGGACTG GACAAGTTGT TCTCGTTCCT TTTCAGTCAG TTGTTTGACT TTTTCAGGAT	1680
ATCCTTGATC AAAAAATTCG GCCAAGCGTT CTGGTAACAA GGTTTTTTAA GCGTTTTTCA	1740
AGGATTTTTT CCGATTTTCT TCTAGAAATG TAACCAAGTC CTTCTCAGAA AGTTGAGGCA	1800
AAACATCGAG TGAGAGAACC TCCCCACCTT TGACAAAGCT AGACATGCGT AGGGCAGCAG	1860
GACCTGACAA ACCAAAGTGG GTAAAGAGTA AATCATGAGT GATGACATGC TTACCATAAC	1920
TTAGGGTCAC ATCGTCCAGA GAAATACCTT GTAAGGCTTT ATGTGGAAAA TCTGTTAATA	1980
AAGGACTTTC AGCAGCCTCA AGATCGGTGA TGGTATGCTT AAAATGGCGA GCAATCTCGT	2040
GACCAAAACC AGTCGAACCA GTCGAAGGAT AAGACTTACC ACCTGTTGTG ACAATGAGTT	2100
TCTCACAAGT GAAGGTTTGA TCCGCTGACT TAAGGACAAA CTGGTCATCT ACTTTTTTAA	2160
CAGAAACGAT TTCTATTGTA GTAGCAACTT GACCACCTAG TTCGGTGATT TTCTTTTCCA	2220
AAGCTTCGAT AATAGTCCGA GACTTGTCAC TGGCTGGAAA GACCGCTCCG TGGTCTTCGA	2280
CCTTAAGTTT AACACCATTT TCTGTAAAAA AGTTGATGAT GTCATGATTA TCGAACTGGG	2340
AGAAAACACT GTAAAGAAAG CGTCCGTTTC CAGGAATTCC AGCTAGCAGG TTGTCTAAGC	2400
TACCATTGTT GGTACATTG CAACGTCCCC CACCAGTCCC AGCTAATTTT TTTCCAAGTT	2460
TCCGATTTTT TTCGATGAGG AGGGTTTTCT GTCCATAAAA GCTACTGGAA ATCGTAGCCA	2520
TCATACCAGC AGGTCCCCCA CCGATGACAA TAGTATCAAA ATGTTTCATA GCTCTATTGT	2580
ACCACAAAAA AACAAGAGAT GATGGTCACC TCTTGTCAG AATGCAATTA ATCAATTTCA	2640
TAGCCCATCA GCAAACCGCC CTCTTCTGCA TAGAACTGC AGAGACCAGA GGTGGGTAGA	2700
ATTTTAATAT CCGCTTGTTG GAAGGTTTCA CGGATTCGCT CTGAGAGCTG TTGACAACAT	2760
TTTTCGTTAT TCGGTTGGGC CATGACAATA CGGCCACCAG CATATCCAGC TTTTACTAAC	2820
TCATCATAGG CAGCTTGAAC TGATTTCTTT GATCCCTTG CTTTTTGTAG CAATTCGAGA	2880

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GTCCCAGTTT CACTAGCTTT TCCGACCATA CGAATGTTGA GAAGGCCAAC GACCGTACCG	2940
ATAAGCTTGC TCAAACGGCC GTTCTTCACC AAGTTATCGA CTTTGGCTAG GACAAAGAGC	3000
AACTTAGTTT TTTCTTGATA GCGGTGATA GCTTCAACCA CTTCTTCAA AGACAAGCCC	3060
TGGTCAATCA AGTCATTCAA TTTTCTACG AGTAGGTCAA CTTCAACCACC AGCAGATAAA	3120
CTATCAATCA CATGAATCTT AGTGTCAAGG TGGTCTTCCA GATAAATATT CTTTGCTAGT	3180
TGAGCACTAT TGTGACTGCC AGAAAGGGTA CCTGTGATGG TTAGTAGGAA AATGTTTTTG	3240
GCACCTTCAA ATGCTCGCAA ATAGTCATCT GGGCTTGGAC AAGCCGATTT TGAAGCTTCT	3300
GCAGTTGCAT ACATGGTTTC CATCATTTGG TCAATATCGA GACTGGCGTC ATCAACAAAG	3360
ACCTGATCAG CTAATTGAAT GGTAAAGGG ACACCTACAA AGGTGTGTGT AATAGCTGGT	3420
GTTGGCAGTT GACGATAATC ACAACCAGAG TCAGCAATAA TCTTCCAAGT CATAGAAATT	3480
CTCCATCTTT GTCAGGAACG AT	3502

## (2) INFORMATION FOR SEQ ID NO: 134:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12665 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 134:

CGATTGATTT TTTTAAAGCG TTCGATAGAG AATGAGAAAC GAATCCTTAG CAATGGCGGG	60
AAAGAATTTG GAGTTGAGAA TACAAAACGA TTAATATGG CTCATATTGT TTTTATCTC	120
TCTTGCTTGG TTGAGGCAAT GGTGCACAAG ACAATTTTGG ATGGCATGGG CATGGTTGGT	180
TTAGTCTTGC TTATTTTTTC TATGCTGATG TTGATGTTGG TGATTCACCT GTTGGGAGAT	240
ATTTGGACAG TGAAGCTTAT GCTTGTCAAT AATCACAAAT ATGTAGATCA TATCTTGTTC	300
AGGACAGTAA AACACCCTAA TTAATTTTTC AATATTCTTC CTGAGTTGAT TGGCTTGACC	360
TTGTTGAGTC ATGCTTATGT GACTTTTGTG TTAGTTTTTC CAGTTTATGC AGTTATTTTG	420
TATCGACGAA TAGCTGAAGA GGAAAAGCTA TTACATGAAG TTATAATCCC AAATGGAAGC	480
ATAAAGAGAT AAATACAAAA TTCGATTAT ATACAGTTCA TATTGAAGTG ATATAGTAAG	540
GTTAAAGAAA AAATATAGAA GGAAATAAAC ATGTTTGCAT CAAAAAGCGA AAGAAAAGTA	600
CATTATTCAA TTCGTAAATT TAGTGTGGA GTAGCTAGTG TAGTGTGTC CAGTCTTGT	660
ATGGGAAGTG TGGTTCATGC GACAGAGAAC GAGGGAGCTA CCCAAGTACC CACTTCTTCT	720
AATAGGGCAA ATGAAAGTCA GGCAGAACA GGAGAACAAC CTAATAAACT CGATTTCAGAA	780

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CGAGATAAGG CAAGGAAAGA GGTGAGGAA TATGTAAAAA AAATAGTGGG TGAGAGCTAT	840
GCAAAATCAA CTAAAAAGCG ACATACAATT ACTGTAGCTC TAGTTAACGA GTTGAACAAC	900
ATTAAGAAGC AGTATTTGAA TAAAATAGTT GAATCAACCT CAGAAAGCCA ACTACAGATA	960
CTGATGATGG AGAGTCGATC AAAAGTAGAT GAAGCTGTGT CTAAGTTTGA AAAGGACTCA	1020
TCTTCTTCGT CAAGTTCAGA CTCTTCCACT AAACCGGAAG CTTACAGATAC AGCGAAGCCA	1080
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AACAAGCCGA CAGAACCAGG AGAAAAGGTA GCAGAAGCTA AGAAGAAGGT TGAAGAAGCT	1140
GAGAAAAAAG CCAAGGATCA AAAAGAAGAA GATCGTCGTA ACTACCCAAC CATTTACTTAC	1200
AAAACGCTTG AACTTGAAAT TGCTGAGTCC GATGTGGAAG TTAAAAAGC GGAGCTTGAA	1260
CTAGTAAAAG TGAAAGCTAA CGAACCTCGA GACGAGCAAA AAATTAAGCA AGCAGAAGCG	1320
GAAGTTGAGA GTAAACAAGC TGAGGCTACA AGGTTAAAAA AAATCAAGAC AGATCGTGAA	1380
GAAGCAGAAG AAGAAGCTAA ACGAAGAGCA GATGCTAAAG AGCAAGGTAA ACCAAAGGGG	1440
CGGGCAAAAC GAGGAGTTCC TGGAGAGCTA GCAACACCTG ATAAAAAGA AAATGATGCG	1500
AAGTCTTCAG ATTCTAGCGT AGGTGAAGAA ACTCTTCCAA GCCCATCCCT GAAACCAGAA	1560
AAAAAGGTAG CAGAAGCTGA GAAGAAGGTT GAAGAAGCTA AGAAAAAGC CGAGGATCAA	1620
AAAGAAGAAG ATCGCCGTAA CTACCCAACC AATACTTACA AAACGCTTGA ACTTGAAATT	1680
GCTGAGTCCG ATGTGGAAGT TAAAAAGCG GAGCTTGAAC TAGTAAAAGA GGAAGCTAAG	1740
GAACCTCGAA ACGAGGAAAA AGTTAAGCAA GCAAAAGCGG AAGTTGAGAG TAAAAAGCT	1800
GAGGCTACAA GGTTAGAAAA AATCAAGACA GATCGTAAAA AAGCAGAAGA AGAAGCTAAA	1860
CGAAAAGCAG CAGAAGAAGA TAAAGTTAAA GAAAAACCAG CTGAACAACC ACAACCAGCG	1920
CCGGCTCCAA AAGCAGAAAA ACCAGCTCCA GCTCCAAAAC CAGAGAATCC AGCTGAACAA	1980
CCTAAAGCAG AAAAACCAGC TGATCAACAA GCTGAAGAAG ACTATGCTCG TAGATCAGAA	2040
GAAGAATATA ATCGCTTGAC TCAACAGCAA CCGCCAAAAA CTGAAAAACC AGCACAACCA	2100
TCTACTCCAA AACAGGCTG GAAACAAGAA AACGGTATGT GGTACTTCTA CAATACTGAT	2160
GGTTCAATGG CGACAGGATG GCTCCAAAAC AATGGCTCAT GGTACTACCT CAACAGCAAT	2220
GGCGCTATGG CGACAGGATG GCTCCAAAAC AATGGTTCAT GGTACTATCT AAACGCTAAT	2280
GGTTCAATGG CAACAGGATG GCTCCAAAAC AATGGTTCAT GGTACTACCT AAACGCTAAT	2340
GGTTCAATGG CGACAGGATG GCTCCAATAC AATGGCTCAT GGTACTACCT AAACGCTAAT	2400
GGTTCAATGG CGACAGGATG GCTCCAATAC AATGGCTCAT GGTACTACCT AAACGCTAAT	2460
GGTGATATGG CGACAGGTTG GGTGAAAGAT GGAGATACCT GGTACTATCT TGAAGCATCA	2520

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GCTGCTATGA AAGCAAGCCA ATGGTTCAAA GTATCAGATA AATGGTACTA TGTCAATGGC	2580
TCAGGTGCCC TTGCAGTCAA CACAAGTGA GATGGCTATG GAGTCAATGC CAATGGTGAA	2640
TGGGTAACT AAACCTAATA TAACTAGTTA ATACTGACTT CCTGTAAAGAA CTCTTTAAAG	2700
TATTCCCTAC AAATACCATA TCCTTTCAGT AGATAATATA CCCTTGTAGG AAGTTTAGAT	2760
TAAAAAATAA CTCTGTAATC TCTAGCCGGA TTTATAGCGC TAGAGACTAC GGAGTTTTTT	2820
TGATGAGGAA AGAATGGCGG CATTCAAGAG GCTCTTTAAG AGAGTTACGG GTTTTAAACT	2880
ATTAAGCCTT CTCCAATTGC AAGAGGGTTT CAATCTCTGC CAGGGTGCTG GCTTGCGAAA	2940
TGGCTCCACG GAGTTTGGCA GCGCCAGATG TTCCACGGAG ATAGTGAGGA GCGAGACCGC	3000
GGAATTCACG AACTGCGACG TTTTCTCCTT TGAGGTTAAT CAATCGTTTC AAGTGTTCTG	3060
AGGCGATCTT CATCTTGTCT TCAAAGGTCA AATCAGGTAG GATTTCTCCT GTTTCAAAGT	3120
AATGGTTGAT TTGGTTGAAG AGGTAAGGAT TTCCCATGGC AGCTCGGCCA ATCATGACTG	3180
CGTCAGCACC AACTTCTTCG ATGCGTTGCT TGGCTTCTTG GACAGTACGG ATATCACCGT	3240
TGGCGATGAA TGGAACTTTG GTTAGAGCTT GGGCAACCTT GTAAAGGGTC TCAAGGTCTG	3300
CGTGGCCAGT ATACATTTGT TCACGGGTAC GGCCATGCAT GGCGAGGGCA GAAACACCTC	3360
CAGCTTCAGC AGCGAGAGCA TTTTCTACTG CAAGAGATGG GTCCGCCAG CCGGTACGCA	3420
TTTTGACAGT AAGTGGGATA TCAAGGACAG ACTGGACCTT GTTGATGATG GAGTAAATCT	3480
TGTCTGGATC CTTGAGCCAC ATAGCACCAG CTTCTTCTT CACGATTTTG TTGACAGGGC	3540
AGCCCATGTT GATATCGACG ATATCGGTCT TGGTGTMTTC TTGGATGAAT TCTGCTGCGC	3600
GTGCTAGGCT GTCTTCATCG CTACCAAAAA GTTGGATAGA GACAGGGTTT TCGCCCTCAT	3660
CGATATGAAG CATGTGCAGG GTTTTTTCGT TGTGTATTG GATTTCCCTG TCAGAGACCA	3720
TTTCCATTAC AACGAGTCCA GCTCCGAGCT CCTTTGCCAT AGTACGAAAG GCTGAGTTGG	3780
TCACGCCAGC CATAGGCGCT AAAACGGTAC GATTGGGAAT CTCAATATTG CCAATCATAA	3840
AAGGTGTATT AAGATTTGTC ACGAATGAGT TCCTCCAGGT CCTTTTCATC AAAGTTGTAA	3900
GTAGTTTGGC AGAATTGACA AGTGATTCTT GCGCCGTGGT CTTCTCTTTT CATTTCTCTG	3960
AAGTCTGAGC TTGGAAGGCT GGCAAGAGCG TTCATAAAGC GTTCATGGCT ACAGTCACAT	4020
TGGAAACGGA TTTCTTCTTC AGAAAGACGC TTGTAGGCTT CGTCCCCGTA GATAGCCTTG	4080
AGGAGGGCTT CGATATGGTC GTCGCTTTCG AGAAGACTAG AGATAGCTGG CATTTCTTGG	4140
ATGCGTTTTT CAAAGCGAGC AATCTCTTCT TTCTTGGCTC CTGGCAAGAC TTGAACTAGG	4200
AAACCACCTG CAACCTTGAC CTTGTCTTCC TCGTCCAAAA GGACATTGAG GCCGACCGCT	4260
GAAGGCCTTT GTTGGCTTTC AGTAAGGTAA AAGGCAAGGT CTTACCCGAT TTCTCCAGAG	4320

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ATGAGGGGAG TTATAGAGTT GTAAGGATTT CCAGTACCGT AGTCTGTGAT AACGAGGAAT	4380
TGACCATTTC CAACAAAAGG TCCGACTAGG ACTTCACCAG TCGCAGTCTT TTTGATGTCA	4440
ACACCAGGAT TTTGAACATA GCCTTTGACG TTCCCCTTGG TATCAGCGAC GGTGATAATA	4500
GCACCTAGAG AGCTAGATCC CAACACCTTA ACTGTAAGTT TGGTATTTCC TTTTTCATTG	4560
GCTGCGAGAA TCTGGCTAGC GATAAGAGTT CGACCAAGCG CTACAGTTGA GCTAGCTTGG	4620
GTTTGATGTT TTTCTTGAGC AGTGCGGACG GTTTCAGTGC TATCAAGGAC AAAAGCACGA	4680
AAGGCTCCGC TTTCTGATAT AGTTTAAATA ATTTTATCCA TAGCTACTAT TTTAGCATAA	4740
AAATGCCCAA AGGGGGAGCC GTGTGTTTAC TGATTTTCAG GATAATGGAC CAGGAAATCA	4800
GCATGAAAAT AAAAAGAGAA ACAGATTATT TTAGCATTTG TCAGATTTAT GCTATGCTTA	4860
AGGTAGAAAA TGAAAGGGAT AACAAATGTA TTTAGGAGAT TTGATGGAGA AAGCCGAGTG	4920
TGGTCAATTT TCAATACTTT CCTTCTATT ACAAGAGTCT CAGACGACCG TCAAGGCTGT	4980
AATGGAAGAA ACAGGATTTT CAAAAGCAAC CCTAACCAA TATGTCACCC TGCTCAATGA	5040
CAAGGCTTTG GATAGTGGCT TAGAGCTGGC TATTCACCTA GAAGATGAAA ATCTGCGTCT	5100
GTCTATCGGT GCAGCTACCA AGGGGAGAGA TATTCGGAGC TTGTTTTTGG AGAGTGCTGT	5160
TAAATACCAG ATTTTGTTTT ATCTTCTCTA CCACCAACAG TTTTtagccc ATCAGCTGGC	5220
TCAAGAATTG GTGATTAGCG AGGCTACGCT TGGTCTGCAC TTGGCTGGTT TAAATCAGAT	5280
TTTGTCAGAA TTTGATTTAT CCATCCAAAA TGGCCGTTGG CGAGGTCCAG AGCATCAGAT	5340
TCACTATTTC TATTTCTGTC TTTTCCGAAA GGTCTGGTCG AGTCAGGAAT GGGAGGTCA	5400
CATGCAGAAA CCAGAGAGAA AACAGGAGAT TGCCAATTTA GAGGAAATCT GCGGTGCAAG	5460
TTTGTCTCGG GGGCAGAAAT TGGACTTGGT TCTCTGGGCT CACATCAGTC AACACGTCT	5520
TCGGGTCAAT GCTTGTCACT TTCAAGTCAT AGAAGAGAAA ATGCGAGGGT ATTTTGACAA	5580
TATCTTTTAT CTTGTTTTGC TGAGAAAGGT TCCGTCCTTT TTTGCTGGGC AACATATTCC	5640
ACTAGGAGTT GAGGATGGTG AGATGATGAT ATTCTTCTCT TTTCTCCTAT CTCATCGCAT	5700
TCTTCCTCTT CATACTATGG AGTATATTCT TGGTTTTGGA GGGCAGTTGG CAGATTTACT	5760
GACGCAATTG ATTCAAGAAA TGAAGAAGGA GGAACATTG GGGGATTATA CAGAGGACCA	5820
TGTCACCTAT GAACTCAGTC AGCTTTGTGC TCAAGTCTAT CTCTATAAGG GCTATATTTT	5880
ACAGGATCGC TACAAGTACC AGTTAGAGAA TCGTCATCCA TATTTACTGA TGGAACATGA	5940
TTTAAAGAG ACAGCAGAGG AGATTTTCA TGCTCTACCT GCTTTTCAAC AGGGGACAGA	6000
TTTAGATAAG AAGATTCTCT GGAATGGCT CCAGTTAATC GAATATATGG CTGAAAACGG	6060

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TGGCCAGCAT ATGCGGATTG GTCTGGATTT GACATCTGGT TTTCTTGTCT TTTCAAGGAT	6120
GGCAGCCATT TTGAAACGGT ATTTGGAATA CAATCGTTTT ATTACCATTG AAGCTTATGA	6180
CCCTAGTCGG CATTATGATT TGCTGGTTAC CAATAACCCG ATTCATAAGA AGGAACAGAC	6240
ACCAGTCTAT TATTTAAAAA ATGACTTGGA TATGGAGGAT TTGGTAGCGA TTCGCCAGTT	6300
ATTATTCACT TAAAAGGCTT GGTTAATCCA GGTCTTTTTT GTGAAATTCA CACAATCTCC	6360
TCACATTTTT TTA AAAAATTA AAAAAAGTTG ATAAACAAGA AAGCGCTTTA TTTGTATAC	6420
TAGTAAGTGT AAAGAGGAAA CACCTCAAGA TCTTTATCAG GAGGACAGTA CATGTCACAA	6480
GAAAAATACA TCATGGCCAT TGACCAGGGA ACTACAAGTT CTCGTGCCAT CATTTTCAAC	6540
AAAAAAGGGG AAAAGGTTAG CTCGACTCAA AAAGAGTTTA CCCAGATTTT CCCTCAGGCA	6600
GGTTGGGTTG AGCACAATGC CAATGAAATT TGGAACTCTG TTCAGTCAGT TATTGCGGGT	6660
GCTTTCATCG AAAGTGGTGT CAAGCCAAAT CAAATCGAGG CAATCGGGAT TACCAACCAA	6720
CGTGAAACAA CGGTGTCTG GGATAAGAAA ACAGGACTTC CTATCTACAA TGCTATCGTT	6780
TGGCAGTCAC GCCAGACAGC ACCTTTGGCT GAGCAACTAA AAAGCCAAGG TTATGTGGAA	6840
AAATTCCATG AAAAGACTGG TTTGATTATT GATGCTTACT TCTCTGCTAC CAAGGTTCTG	6900
TGGATTTTGG ATCATGTAGA AGGTGCTCAA GAGCGAGCAG AAAAAGGGGA ATTGCTCTTT	6960
GGTACTATCG ATACTTGGTT GGTTTGGAAT TTGACTGACG GTGCGGCTCA CGTGACTGAC	7020
TACTCAAATG CAGCTCGTAC CATGCTTTAT AACATTAAAG AACTCAAATG GGATGATGAG	7080
ATTTTGGAAT TCCTTAACAT TCCGAAGGCT ATACTTCCAG AAGTTCTGTC TAACTCCGAA	7140
ATCTACGGCA AGACAGCTCC ATTCCATTTC TACGGTGGAG AGGTGCCAAT CTCAGGTATG	7200
GCTGGGACC AACAGCAGC CCTCTTTGGA CAGTTGGCTT TTGAGCCAGG TATGGTTAAG	7260
AATACTTATG GAACAGGCTC TTTCATCATC ATGAATACTG GGAAGAGAT GCAGTTGTCT	7320
GAAAAACAAC TCTTGACAAC CATTGGTTAC GGAATCAACG GTAAGGTTTA TTATGCCTTG	7380
GAAGGTTCTA TCTTCATCGC AGGAAGTGCT ATTCAGTGGC TTCGTGACGG TCTTCGCATG	7440
GTTGAAAATT CACCAGAATC TGAAAAATAC GCTCGTGATT CTCACAACAA CGATGAAGTT	7500
TATGTCGTTT CAGCCTTTAC AGGTCTAGGC GCTCCATACT GGAACCAAAA TGCTCGTGGT	7560
TCCGCTCTTG GTTTGACTCG TGGAACAAGC AAAGAAGACT TTATCAAGGC GACTTTGCAA	7620
TCTATTGCTT ATCAAGTGCG TGATATCATC GACACCATGC AAGTGGATAC TCAGACCGCC	7680
ATTCAAGTAC TGAAGGTGGA TGGTGGTGCA GCCATGAACA ACTTCCTCAT GCAGTTCCAG	7740
GCGGATATTT TAGGCATTGA CATTGCACGT GCTAAAAACC TGGAAACAAC AGCTCTAGGA	7800
GCGGCCTTCC TAGCAGGTTT GTCAGTAGGG TACTGGAAAG ACTTGGACGA GTTGAAACTC	7860



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TTGAACGAGA CAGGAGAACT CTTTGAGCCA TCTATGAACG AATCTCGCAA GGAACAACTC	7920
TACAAGGGCT GGAAGAAGGC TGTGAAAGCA ACTCAAGTCT TTGCGGAAGT AGACGACTAA	7980
TACTGGCAGA ATAAAGCGAT TTATTTAGAA AGTGTGTAAA TATGGAATTT TCAAAGAAAA	8040
CACGTGAATT GTCAATTTAA AAAATGCAGG AACGTACCCT GGACCTCTTG ATTATCGGTG	8100
GAGGAATCAC AGGAGCTGGT GTAGCCTTGC AGGCGGCAGC TAGCGGTCTT GAGACTGGTT	8160
TGATTGAAAT GCAAGACTTT GCAGAAGGAA CATCTAGTCG TTCAACAAAA TTGGTTCACG	8220
GAGGACTTCG TTACCTCAAA CAATTTGACG TAGAAGTGGT CTCAGATACG GTTTCTGAAC	8280
GTGCAGTGGT TCAACAAATC GCTCCACACA TTCCAAATC AGATCCAATG CTCTTACCAG	8340
TTTACGATGA AGATGGAGCA ACCTTTAGCC TCTTCCGTCT TAAAGTAGCC ATGGACTTGT	8400
ACGACCTCTT GGCAGGTGTT AGCAACACAC CAGCTGCGAA CAAGGTTTTG AGCAAGGATC	8460
AAGTCTTGGA ACGCCAGCCA AACTTGAAGA AGGAAGGCTT GGTAGGAGGT GGAGTGTATC	8520
TTGACTTCCG TAACAACGAT GCGCGTCTCG TGATTGAAAA CATCAAACGT GCCAACCAAG	8580
ACGGTGCCCT CATTGCCAAC CACGTGAAGG CAGAAGGCTT CCTCTTTGAC GAAAGTGGA	8640
AGATTACAGG TGTGTAGCT CGTGATCTCT TGACAGACCA AGTGTTTGAA ATCAAGGCC	8700
GTCTGGTTAT TAATACAACA GGTCCCTTGA GTGATAAAGT ACGTAATTTG TCTAATAAGG	8760
GAACGCAATT CTCACAAATG CGCCCAACTA AGGGAGTTCA CTTGGTAGTA GATTCAAGCA	8820
AAATCAAGGT TTCACAGCCA GTTTACTTCG ACACAGGTTT GGGTGACGGT CGTATGGTCT	8880
TTGTTCTCCC ACGTGAAAAC AAGACTTACT TTGGTACAAC TGATACAGAC TACACAGGTG	8940
ATTTGGAGCA TCCAAAAGTA ACTCAAGAAG ATGTAGATTA TCTACTTGGC ATTGTCAACA	9000
ACCGCTTCCC AGAATCCAAC ATCACCATTG ATGATATCGA AAGCAGCTGG GCAGGTCTTC	9060
GTCCATTGAT TGCAGGGAAC AGTGCCTCTG ACTATAATGG TGGAAATAAC GGTACCATCA	9120
GTGATGAAAG CTTTGACAAC TTGATTGCCA CTGTTGAATC TTATCTCTCC AAAGAAAAAA	9180
CACGTGAAGA TGTTGAGTCT GCTGTGACGA AGCTTGAAAG TAGCACATCT GAGAAACATT	9240
TGGATCCATC TGCAGTTTCT CGTGGGTCTA GCTTGGACCG TGATGACAAT GGTCTCTTGA	9300
CTCTTGCTGG TGGTAAAATC ACAGACTACC GTAAGATGGC TGAAGGACCT ATGGAGCGCG	9360
TGGTTGACAT CCTCAAAGCA GAATTTGACC GTAGCTTTAA ATTGATCAAT TCTAAAACTT	9420
ACCTGTCTTC AGGTGGAGAA TTGAACCCAG CAAATGTGGA TTCAGAAATC GAAGCCTTTG	9480
CGCAACTTGG AGTATCACGT GGTTTGGATA GCAAGGAAGC TCACTATCTG GCAAATCTTT	9540
ACGGTTCAAA TGCACCGAAA GTCTTTGCAC TTGCTCACAG CTTGGAACAA GCGCCAGGAC	9600

914

TCAGCTTGGC	AGATACTTTG	TCCCTTCACT	ATGCAATGCC	CAATGAGTTG	ACTCTTAGCC	9660
CAGTTGACTT	CCTTCTTCGT	CGTACCAATC	ACATGCTCTT	TATGCGTGAT	AGCTTGGATA	9720
GTATCGTTGA	GCCAATTTTG	GATGAAATGG	GACGATTCTA	TGACTGGACA	GAAGAAGAAA	9780
AAGCAACTTA	CCGTGCTGAT	GTCGAAGCAG	CTCTCGCTAA	CAACGATTTA	GCAGAATTAA	9840
AAAATTAAGA	AAAAATAAAA	GAGGTGGAGG	GCAGCATTC	TTGTCGCCCG	TCCCTTCTTT	9900
TTAATGGAGA	CAGAAAGATG	ATGAATGAAT	TATTTGGAGA	ATTTCTAGGG	ACTTTAATCC	9960
TGATTCTTCT	AGGAAATGGT	GTTGTTGCAG	GTGTGGTTCT	TCCTAAAACC	AAGAGCAATA	10020
GCTCAGGTTG	GATTGTGATT	ACTATGGGTT	GGGGGATTGC	AGTTGCGGTT	GCAGTCTTTG	10080
TATCTGGCAA	GCTCAGTCCA	GCTTATTTAA	ACCCAGCTGT	GACCATCGGT	GTGGCCTTAA	10140
AAGGTGGTTT	GCCTTGGGCT	TCCGTTTTGC	CTTATATCTT	AGCCCAGTTC	GCAGGGGCCA	10200
TGCTGGGTCA	GATTTTGGTT	TGGTTGCAAT	TCAAACCTCA	CTATGAGGCA	GAAGAAAATG	10260
CAGGCAATAT	CCTGGCAACC	TTCAGTACTG	GACCAGCCAT	CAAGGATACT	GTATCAAAC	10320
TGATTAGCGA	AATCCTTGGA	ACTTTTGTTT	TGGTGTGAC	AATCTTTGCT	TTGGGTCTTT	10380
ACGACTTTCA	GGCAGGTATC	GGAACCTTTG	CAGTGGGAAC	TTTGATTGTC	GGTATCGGTC	10440
TATCACTAGG	TGGGACAACA	GGTTATGCCT	TGAACCCAGC	TCGTGACCTT	GGACCTCGTA	10500
TCATGCACAG	CATCTTGCCA	ATTCCAAACA	AGGGAGACGG	AGACTGGTCT	TACGCTTGGA	10560
TTCTGTGTGT	AGGCCCTGTT	ATCGGAGCAG	CCTTGGCAGT	GCTTGTATTC	TCACTTTTCT	10620
AGTTTATACT	CTTCGAAAAT	CAAATTCAAA	CCACGTCAGC	GTCGCCCTAC	CGTACTCAAG	10680
TACAGCTTGC	GGCTAGCTTC	CTAGTTTGCT	CTTTGATTTT	CATTGAGTAT	TAGAAAACAA	10740
TTATGTTGAT	AGAGCTTGGG	CAAGAGCCCA	ATTTAGCAA	AAAATGAAGT	AAATCTTCTC	10800
ATAATAAAAC	GCATCATATC	AAGCACGAAA	ATTCACGAG	GTCAACTACA	GTCAGAAAGC	10860
TGAACAACAA	GCCAAAACGC	CCAAAAAAGG	CGGCAAAAAG	CAAGCACCTG	CAAGCAACGT	10920
GCCGAAATGG	TCAAATCCTG	ATTATGTCAA	CGAATTAGAC	CCAAAAATCG	TTGATATGCT	10980
AGTAGAATTT	CACAAGTCAC	AAGGCACTTT	GGAAACTCCC	GAGGCGCAAG	CAGAAATCGC	11040
CCAAAAACGT	GAAGAAATCG	AGCAAAGGAG	AGCTGAGCTT	GAGGGTAAAA	AACAAGAGCT	11100
TTTGAACCGC	TTGAACAAAT	AGAGTTTCGC	AAGTATTATG	CTTACAAATT	ACTTGAGCAA	11160
TTAACTAAAA	TATAAACCTT	GCCTTTATAT	CTAGGCAGGG	TTTATATTTT	AGAAATTCAC	11220
GTAGGTTGTT	ACGGTTTTTA	CATACCCAGT	ATAGTTTGAG	TTTCTATAGT	ATTCAGTGAT	11280
AAACTTCCAT	TTTCTTTGAG	CAACATGGAT	ATAAGTACTT	GTTATGTAGT	ATGGATATGG	11340
GCTTTGTGAA	TCCAAGTAAG	ACTGATAAGC	TTGTATACCA	AAATATGCTC	CACCAATTAT	11400

915

TGCACCCCAT GGACCCCCCA ATAAAGCACC TATCCTACCA ATCATATAAC TGATTCCAGC	11460
ACCAGTCATG AAGTTAGCGA ATGTGTTAGC TTGTTTATTC CCATGTATTG TGTGACGTA	11520
ATTCCAAACA TTAGGATCGT ATGATCTAAA AGATATATTT AGGTCGATTT CATTCCTTTG	11580
ATAAGCCATA TAAATGCCC CATTGATATA GACGCCGTCA GCACGTCGTT CAATAGTGTC	11640
TACACTTCCA TCTGGATTGA CAACCTCAAG AACTTCATCG CTAAAAATAT TTACTTGCGT	11700
ATCTCCGAAC CGCACTGATG AGCCATTCTC AAAGTGAGCC TCACCAGATA CAACTTTAGA	11760
GTTTGCCGAT AAGCTATCAT CAGCAAAAAC AAACAAGCGA CGGGGAAATG CTAGACATAC	11820
AGAAAACAGA CATAACTAGC AAACACATGC ATTTAAACAT CTTAGACATA ACGGAAACTC	11880
CTTTGTATTT TTGATTTTTC TCAACTTTTA TTATACAATA AAACCAAATA AAAAGAAAGC	11940
GGTAACAATA TGCTTAATGC GAAAATTTTT TATATATTTT TATGTTTGAT CGTTATCGAA	12000
ACTACAGGCT TGTGTTGTTT GAAAAGAGGT CTCGAAATGG GTTATTTAGA CACAGAAGCT	12060
ATTATCCTCG CAGTTTTTTC ATTTGCTTTT TACAACCTAT GTTCATTCGC TTGGGTCTGC	12120
TCTACAATAA AAAACAATAA AAAATAAATA GACGTATTTT CAAAAAAAAC maAATGCATA	12180
TTTATATTAG CAAAACGACG ATTTAAATCG TCGTTTTTTT GTAGTACGAC GGGCATGTCG	12240
TATATCTGAG GTGTAAGTCC TCAGCCTGAC TATCGTGAGG TAGCAGGGAG AGGAAGGGAT	12300
AGCGAAATCG TGGCTCTACG AACAGGAACG TGATAGTAAG GCGTATATAG CGGATAAGGA	12360
GGCTTCAAAC TCTAAAGTCC AAAAAGGTAG TCGTAACCTA TATGTGTAAA TCACGAGAGT	12420
AATTGAATTC GGAATAAGGT TTGTGTGAAA AAGATAAATC TTTCTAGAGT CTAAAGACTC	12480
TGCGTCAGAT TTCCTATTTT CACTGTAAAC TTTTAACGTC CTCATATCTT GTATAAACGA	12540
GGAAAGATGT ACGACTTATC CCGTGAGGTT TCATGAGCGT GAAAGCGTAG TAACAACGAA	12600
TCATGAGAAG TCAGCCGAGC CCATAGTAGT GAGGAAACTT CCGTAATGGA AGTGGAGCGA	12660
AGGGG	12665

## (2) INFORMATION FOR SEQ ID NO: 135:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 5305 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 135:

CGCTAATCAC TACAATCATT TTATTGTACT TTTTCACTCT CAAGAAAAGC AAGAAGTATT

60

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CATTTTAGTT TCATTTAGTA TTATTTTGCA TACCTAAAAT ACAGTAAAAA ATCAGTCATC	120
TTGGTATGCT CCTGCTTTCA CTATTCAACA CGTTTTTGAC TTATACTAGG CTCATTTCCTA	180
AAAGCATTAT ATAATAGTGA TATGAAACCA ACTAAACTAA ACAAGAAATA TAAGCAATAA	240
AAATTCGTTT AAAAGATCTT ACTAAAGCTA ATACTAAATA AAAATAAAAG AGTAAACTAG	300
GAAGTTTATT TCAAACAACC TAAAATACTG ATTTTCGGCT GAAGATAATA CTGGAGTGCA	360
AATTAATGGG GTTATAATAA ATAGCTGATA GCTTGTGTG GTTTTGGATT TTTTAAGAGT	420
AGATGAGTAT TAAAACTATA AGGAGGACGA AGGTGGCTAA AAATTTAAAA TAAAAATTAG	480
CTCGGGTAGA GCGTGATTTA ACACAAGGTC AACTGGCAGA GGCTGTCTGGG GTCACACGCC	540
AGACTATTGG TTTAATAGAG GCGGGAAAAT ACAATCCCAG TCTCTCGCTC TGCCAGTCTA	600
TTTGCAGATG TTTAGGGAAA ACCCTAGACC AACTATTTTG GGAGGAAGAA GATGAAAAAT	660
AGATTTTATT ATTCTCAATT ACTAGACGAA AGAGAAGAAC AACTGTTCAA TAAAGCGGGC	720
TCTGAAAGTT TCTATATCTG CATTGCTTTG TCGCTCCTAT CTTATATCAT TTCAGTATTA	780
GCACCAAGCC TTTTAATTC TAATATGCTG CTAATCGTTA TCATCATAGG GACATTTTAC	840
TTTTTCAATC GTGCCCCTTA TCTGGGAGTG ACCTACTATG GTCGTTTTCA TTTTACGATT	900
TTGGGTTGTT TTTTCCTAAC CTTGGCTATT ACGGCTCTTT TGATGTTGCA GAATTATCAA	960
TTCAACATAG AAATTTATCA GCACAATCCT TTGAATTTTA AATACCTGTC TGCTTGGGTC	1020
ATTACTTATA TCATTTACCT TCCGTGGATC TTTATTGCCA ATCTTGGTCT TAAGAGCTAT	1080
GGCGAATGGG CTCAGAAAAA ATTTGAACAA GATATGGATG AATTGGAGAG TGGAGAATAG	1140
CTTGTTACTC TTTTCTCAAT CCAGCTAAAA TGTGATATAA TAGTACTAAT TTATTGGAAT	1200
ACATGAAAGT TCTTGAAAT TTTTATGGGT TTCTAGCTAA GGAAGTAGGA AAAGTATGTA	1260
TCCAGATGAT AGTTTGACAT TGCACACGGA CTTGTACCAG ATCAACATGA TGCAGGTTTA	1320
CTTTGACCAA GGGATTACACA ATAAGAAGGC GGTCTTTGAG GTGTATTTCC GCCAACAGCC	1380
TTTTAAGAAC GGCTATGCGG TTTTGCAGG TTTAGAAAGA ATTGTAAGT ATCTTGAAGA	1440
CTTGCGTTTT TCAGATAGTG ATATAGCCTA TTTGGAGTCG CTTGGTTATC ATGGGGCGTT	1500
CTTGGATTAC CTTCCGAATT TCAAGTTGGA GTTGACCGTT CGTTCTGCCC AAGAAGGGGA	1560
TTTGGTTTTT GCTAATGAAC CGATTGTGCA GGTGGAAGGA CCTCTAGCCC AATGTCAGTT	1620
GGTCGAAACG GCTCTTTTGA ACATCGTCAA CTACCAGACT TTGGTGGCGA CGAAGGCAGC	1680
TCGTATTTCG TCGGTTATCG AAGATGAACC CTTGATGGAG TTTGGGACAC GTCGGGCTCA	1740
AGAAATGGAT GCGGCCATCT GGGGAACACG CGCAGCTGTG ATTGGTGGCG CCAATGGAAC	1800
CAGCAACGTG CGTGCGGGTA AGCTCTTTGA CATTCCTGTT TTGGGAACCC ATGCCCATGC	1860

CTTGGTACAG GTTTATGGCA ATGACTATGA AGCTTTCAAG GCTTACGCTG CGACCCACAA	1920
AAATTGTGTC TTTCTTGTGG ATACCTATGA CACCCTTCGC ATCGGTGTAC CAGCTGCCAT	1980
TCAGGTGGCG CGTGAGCTGG GTGATCAGAT TAACTTTATG GGTGTGCGGA TTGACTCTGG	2040
GGATATTGCC TACATTTCTA AGAAAGTCCG TCAGCAACTG GATGAGGCTG GATTTACAGA	2100
GGCTAAGATT TATGCTTCTA ATGATCTAGA TGAAAATACC ATCCTTAACC TCAAGATGCA	2160
AAAGGCCAAG ATTGATGTCT GGGGTGTGGG TACCAAGCTG ATTACAGCCT ATGACCAGCC	2220
GGCTCTTGGG GCGGTTTACA AGATTGTTGC AATCGAAGAT GAAACTGGTC AGATGCGCAA	2280
TACGATTAAG CTGTCTAATA ATGCTGAAAA AGTTTCTACG CCAGGTAAGA AGCAGGTGTG	2340
GCGCATTACC AGTCGTGAAA AAGGCAAGTC AGAAGGCGAC TATATCACTT ATGATGGTGT	2400
GGATATTAGC GACATGACAG AAATCAAGAT GTTCCATCCG ACCTATACAT ACATCAAGAA	2460
GACGGTTCGT AATTTTGATG CCGTTCCTCT CTTGGTGGAT ATCTTCAAAG AAGGAATATT	2520
AGTTTACAAC TTGCCTAGTT TGA CTGACAT TCAGGATTAT GCCCGTAAGG AATTTGACAA	2580
GTTGTGGGAT GAGTATAAGC GTGTGCTCAA TCCGCAGCAC TATCCAGTGG ATTTGGCGCG	2640
TGATGTATGG CAAGATAAGA TGGACTTGAT TGATAAGATG CGCAAGGAAG CCCTTGGTGA	2700
AGGAGAAGAA GAATGAGTTT GCAAGAAAAG ATTATCCAAG AGCTGGGTGT CAAACCAGTG	2760
ATTGATGCCC AGGAAGAAAT CCGTCGTTCT ATTGATTCTT TAAAAAGATA TCTGAAAAAA	2820
CATCCCTTCC TAAAAACCTT TGTACTAGGG ATTTCTGGGG GACAAGACTC AACCTTGGCA	2880
GGACGTTTGG CGCAATTAGC TATGGAAGAA CTGCGAGCTG AAACGGGAGA CGATAGCTAC	2940
AAATTTATCG CTGTCCGCCT GCCATACGGA GTGCAAGCTG ATGAAGCAGA TGCTCAAAAA	3000
GCCCTAGCCT TCATCCAGCC AGATGTCAGC TTGGTTGTGA ATATCAAGGA ATCAGCTGAT	3060
GCCATGACAG CTGCAGTTGA AGCGACAGGT AGTCCTGTTT CAGACTTCAA CAAGGGGAAT	3120
ATCAAGGCAC GTTGCCGTAT GATTGCTCAG TATGCCCTTG CTGGTTCCCA TAGCGGAGCG	3180
GTCATTGGAA CAGACCACGC CGCGGAAAAT ATCACAGGTT TCTTTACCAA GTTTGGTGAC	3240
GGCGGTGCGG ATATTCTCCC TCTTTACCGC CTCAATAAAC GCCAAGGAAA ACAGCTCTTG	3300
CAGAACTTG GCGCAGAGCC AGCCCTTTAT GAAAAAATCC CAACGGCAGA CCTAGAAGAA	3360
GATAAACCAG GCCTAGCTGA CGAAGTCGCA CTTGGAGTCA CCTACGCAGA GATTGACGAC	3420
TACCTAGAAG GCAAAACAAT CAGCCCAGAA GCTCAAGCGA CCATTGAAAA CTGGTGGCAC	3480
AAAGGCCAAC ACAACGCCA CTTACCCATC ACCGTATTTG ATGACTTTTG GGAGTAAAAA	3540
GGTCCGGGGG ACCTTTT TAG CTTCTTGCCC TGAAATTAAA AAGCAAGAAA AACCTCCACT	3600

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GGAGGTTTT C AGCCTCTCAT CTTGAAATAA GAAAGTGAGA GAAGGTCTGG GGGATCTTGA	3660
ACCCCGAGTT TAGAAATAAG AAAATGAGGC AGATTCACTA ACTCGAAGAG TTCGATTTCA	3720
TCGTCTTACC CCTGCAACGA TGAAGTAGTT TGAAAAAGCT TGCTAGAGCG CATTTCAAAC	3780
CAGGCAGCAA CTGCGTCAAG AAATTAGAAG ACAAACCTGT TTTCTAGCTG TTAAGTAGTT	3840
GAGCCTTTTT ACTACGAGTA TAGAAATAAG GAAGTGAGGT AGCATCATGA AATCTATCGG	3900
TACGCAAATA TTACAGACAG AACGTTTGAT TTTAAGAAGA TTTGTGGAGA GTGATGCAGA	3960
AGCCATGTTT CAAAATTGGG CTTTCATCCGC TGAGAATCTG ACCTATGTTA CCTGGGATCC	4020
CCATCCTGAT GTCGAAATCA CTCGAACTC GATTTGCAAT TGGGTTGCTT CCTATACTAA	4080
TCTCAACTAT TATAAATGGG CCATTGTGCT AAAAGAAAAC CCAGAGCAAG TAATAGGAGA	4140
TATCAGCATT GTTAAGATAG ACGAGGCTGA TTTAAGCTGT GAAATTGGCT ATGTGTTAGG	4200
CAAGGCTTAC TGGGGAAATG GTATGATGAC AGAGACTTTG AAAGCTATCT TGGACTTTTG	4260
TTTTACTCAA GCAGGTTTTT AAAAGGTCAG AGCAGCTTAT GCCAGTCTCA ACCCAGCTTC	4320
AGGTCGTGTC ATGGAAAAGG CTGGAATGTC CTATCTACAA ACCATTGTTA ATGGGTGAGA	4380
GAGAAAAGGC TATCTTGCGG ATCTTATTTA TTATGGTATA AGTAGGGAAG AATGTTGAAT	4440
TCTATTTTCT GTTTCTATCG AAGTCAACTA TTTATTGTAA ATATAATAAT TAGCATTCCA	4500
AGTTTATTTG AAACTTTAAA ATAGCATATT GATTAGTACA AGACAGATGT TCTAGTTCCT	4560
TCTTTAATCT GGTTAGTGT TAGTTAAAAA ATCGCTTTAA GCTTGTAAC TAAAGGGAGC	4620
TAATCGACTA GATTCTCCAG CCGAACAGGT GGTAAATGTAC TTTTATAGT GTAATCCTAG	4680
CTGTGTAA ATTTAAAATA GAATCCTCTA TCGAGTTAGG GAATTAAAT CAACCAATTT	4740
TATTCATGTT TTTCTATCA AATTATCTAA TATTAAAATA GTCTCATTCT GATGAGAAAA	4800
CTATTCCCAA ATCATTCTA CCTCTCTCA CTAGATGTAA CTTACAAAAC CCCTGACCTC	4860
ATGAGCCACT TTCTTCTCC TCATGAGGTC AGTTTTACTT TCTGCTGTT CAGTATCGTT	4920
TTCTCTCGCT AGATTCTCT AAAAGGGCAG ACTCTCCCT TGGTGGCTCA CACGATTTTT	4980
TCATCTCGAC TGTCTTTAA TGCATCATTA ACGACGCTT TCTTCTAGGT GGTTCATAAG	5040
GAACAGGAAG ATTCAGGTG ACTTTTCTAA TCCTAGAATA AAGTGCTGAA AACAAATTCGG	5100
AATAGGCATA GAGACTAGAC AATTTGAGGA GCTGCTTGG TCCTGTTTCA ACACATTTTC	5160
CCACCACGTG AAGAAAAAGA TGGCGGAAGC GTTTGATTGT TAAAGTTTGG AAGTCACCTC	5220
CAGCTAGATG TTTGAGAAAA AGATAGAGAT TGTAGGCGAT ACAGCTCATC ATCATACGAA	5280
CTTCGTTTTT GATTAAGGTT GAACT	5305

(2) INFORMATION FOR SEQ ID NO: 136:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3964 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 136:

TGGCAGCTCG TCGTCGTAAG GGACGCAAAG TTTTGGCTGC ATAATCCAAA CGAATTCTAT	60
CAAAAATCAG TAGGAACCTG AGTCTACTGA TTTTATTTT TGTAAAAAG TTCAGTAGAT	120
GCAAATGGAT TCGGAAGCGA TGTTACAGTA GATTGAACT AGAATAGTAC ACCTCTGTTT	180
CTAAACATT GTTAGAAATC GATTGACTG TCCTGATCGA TTTGCTCTGT TATTATTTTA	240
TTTACTATA AAGTTGAAGT AGGTGGAGAT GGTACAGCAA CAATCGTCTT TAAAGATGGT	300
TCAGCTATTA CAATTCCAGG AAATCAATTG GTAGCACAAG ATCCAAAAGC ACAAGATAGC	360
ACTAACTGA CTGCTGAAAA ATCAACTGTT AAAGCACCTG CTCAAAGAGT AGATGTAAAA	420
GATATAACTC ATTTAACAGA TGAAGAAAA GTTAAGGTTG CTATTTTACA AGCAAAATGGT	480
TCAGCATTAG ACGGAGCGAC AATCAATGTA GCTGGAGATG GTACAGCAAC AATCACATTC	540
CCAGATGGTT CAGTAGTGAC GATTCTAGGA AAAGATACAG TTCAACAATC TGCCAAAGGT	600
GAATCTGTAA CTCAAGAAGC TACACCAGAG TATAAGCTAG AAAATACACC AGGTGGAGAT	660
AAGGGAGGCA ATACTGGAAG CTCAGATGCT AATGCGAATG AAGGCGGTGG TAGCCAGGCG	720
GGTGGATCAG CTCACACAGG TTCACAAAAC TCAGCTCAAT CACAAGCTTC TAAGCAATTA	780
GCTACTGAAA AAGAATCAGC TAAAAATGCC ATTGAAAAAG CAGCCAAGGA CAAGCAGGAT	840
GAAATCAAAG GCGCACCGCT TTCTGATAAA GAAAAAGCAG AACTTTTAGC AAGAGTGGAA	900
GCAGAAAAAC AAGCAGCTCT CAAAGAGATT GAAAATGCCA AAATATGGA AGATGTGAAG	960
GAAGCAGAAA CGATTGGAGT GCAAGCCATT GCCATGGTTA CAGTTCCTAA GAGACCACTG	1020
GCTCCTAATG CTGCTCCTAA GACAACAAGT GCACCGCAAG CAACTGCAGG AACAATGCAA	1080
GATGTTACCT ACCAGTCACC TGCTGGCAAA CAATTACCTA ACACAGGTTC AGCATCAAGT	1140
GCAGCACTTG CTAGTCTTGG TCTAGTGGTG GCAACAAGTG GTTTTGCTTT GCTAGGAAGA	1200
AAGACTAGAC GTAGAAAATA GAACAGCTAG AAAATTCTAT TCTCTACTTA AAGTTAGATT	1260
ATAAGGGGGA TTTTGAGAAG TCATCAATCC TAGTGATGGG TGAGAAAAGT GAGAACCCTA	1320
GATAATCACA TACTTTAGCT GAATAGGAAT ATTCTATCAA TGAGCCAAT CTCTTCTGTC	1380
TCTAACTGTG GAATAGGAGA TGGCAATAT CGGATAGAAA AGATAGCAGA ATAGCTCTCT	1440

920

ATTGAAGAGA	GGAGGGGAAA	CCGAAAAATT	AGGTGCCCCCT	CCTCTTTTTT	GGTATAATAG	1500
AAGATAGAAA	ACGAGGTTAG	AAGAGATGAT	TTTTGATACA	CATACACACT	TGAATGTAGA	1560
AGAATTTGCA	GGTCGTGAGG	CAGAAGAAAT	TGCCTTGGCT	GCTGAGATGG	GTGTGACACA	1620
GATGAATATT	GTTGGTTTTG	ATAAACCGAC	GATTGAGCAT	GCCTTGGAGT	TGGTAGATGA	1680
GTATGAGCAG	CTCTATGCCA	CTATTGGTTG	GCATCCTACA	GAAGCTGGTA	CTTATACAGA	1740
GGAAGTTGAG	GCTTACTTGT	TGGATAAGTT	AAAACATTCC	AAGGTTGTGG	CTTTAGGTGA	1800
AATTGGCTTA	GATTACCATT	GGATGACAGC	GCCCAAAGAG	GTGCAGGAGC	AGGTTTTTCG	1860
CCGTCAGATT	CAGCTATCTA	AGGACTTGGA	TTTGCCTTTT	GTTGTCCATA	CCCGTGATGC	1920
GCTGGAAGAT	ACCTATGAGA	TTATCAAGAG	TGAGGGCGTT	GGTCCTCGTG	GTGGTATCAT	1980
GCATTCAATT	TCAGGGACGC	TTGAGTGGGC	AGAGAAGTTT	GTGGATCTTG	GTATGACCAT	2040
TTCTTTCTCA	GGAGTGGTGA	CTTTTAAGAA	GGCAACTGAC	CTCCAAGAAG	CAGCTAAAGA	2100
GTTACCTTTG	GACAAGATGT	TGGTGGAAAC	AGATGCGCCT	TACTTAGCAC	CTGTACCCAA	2160
GCGTGGTCGT	GAAAATAAAA	CAGCCTATAC	TCGCTATGTG	GTGACTTTTA	TCGCTGACTT	2220
GCGTGGTATG	ACGACAGAAG	AGCTGGCGGT	AGCAACGACT	GCAAATGCAG	AACGAATTTT	2280
TGGACTGGAC	AGCAAGTAAT	GAAAGAGAAA	ATTTCTCAAG	TTATCGTGGT	TGAAGGGCGT	2340
GATGATACGG	TCAATCTCAA	ACGTTATTTT	GATGTGGAGA	CCTATGAGAC	TCGAGGTTCT	2400
GCCATCAATG	CTCAGGATAT	AGAGCGGATT	CAGCGCCTGC	ACCAACGTCA	TGGAGTCATT	2460
GTCTTTACAG	ACCCAGATTT	TAATGGGGAA	CGGATTCGGC	GCATGATCAT	GATGGTCATT	2520
CCAACAGTTC	AGCATGCCTT	TCTCAAGCGA	GATGAAGCTG	TTCCCAAGTC	CAAGACCAAG	2580
GGGCGTTCTC	TGGGAATTGA	GCATGCCAGC	TATGAAGACC	TGAAAACGGC	TCTAGCTCAA	2640
GTGACAGAAC	AATTTGAACA	TGAGAGTCAG	TTTGACATTA	GTCTAGCGA	TTTGATTTCG	2700
CTTGGTTTTT	TAGCAGGGGC	AGACAGCCGT	AAGCGTAGAG	AATATCTCGG	AGAGACTCTC	2760
CGAATCGGCT	ATTCCAACGG	CAAGCAACTC	CTCAAACGCC	TAGAGTTGTT	TGGGGTTACT	2820
TTGGCAGAAG	TGGAAGAAGC	TATGAAATCT	TATGAGTAGG	AAAGATGTAG	CCGTTACAAT	2880
TTTTTAAGTT	TCACAGTATT	TTTCGAAGCA	GGTAGAAGAG	GAGGCGTCTG	ATGTTAATTG	2940
GTCAAAAAAT	TAAAGAGATT	CGGATAGAAA	AAGGAATTAG	TCGTCCAGAT	TTTTGTGGAG	3000
ATGAGCAAGA	ACTGACAGTT	CGTCAACTGT	CGCGAATTGA	AAGTGGAGCT	TCGCAACCGA	3060
GTTTGCCCAA	GTTAGACTAT	ATTGCTCGCC	GGCTAGGAGT	TCCAGTTTAT	AGCCTTATGC	3120
CGGATTTTTT	AGCTCTTCCT	TCTGCTTATT	TAGAATTGAA	ATACCAGATT	TTACGTGAAC	3180
CAATCTATGG	TAAAGAAGAG	GAGTACGATA	AGAAGGAAGC	GTGTTTGGAA	GAGATTTATA	3240



921

AAACATACTT TGATAATCTT CCTAAAGAAG AACAAPTAGC ATGTGAAGTA TTGCAGGCGT	3300
GTTTGGATAC TTCTAGAACT AGAAGGCCTG AATATGCAGA GTTAATACTT GAGGAACATA	3360
TGCCTCAGAT TATAGAAAAA GAAGCTTATT CAATAAATGA TATGTTGTTG ATTCGTTTGT	3420
TTTTTTATCA AATGCTCATT AGAAAAGATC TTGCCAAATT TATAAATCAA ATCGAAAAGC	3480
TAATGCTCTT TCTTTTGGA CAGAAGAAGG TAACTCAAAT AGAGAATTAC TTTATAATTA	3540
GAGATACTCT TATTTCAGGA ATGTGTTGTC TTGAAAAGGT AGGAGTAACT GATTGTTTTA	3600
ATGATTATCT ATCGTGTTTA CAAGAAATTA TGGATAAAAC TCAAGATTAT CAAAAGAAAC	3660
CTCTTGATTT TATGTTTTTG TGGAAGCAAG CATTAAAGAGA AGAAAGAGAT TTTAGTTTAG	3720
CTGAATCATT TTATCAGTCT TCTAAACAT TTGCGCAGCT AATTGGAGAT GAATTTCTAG	3780
TAAAGAAATT GACAGAGGAA TGGCAAGAGG ATGTCAAAAA ATATTTATAA ACATAGTGAA	3840
TCAGTGACAA AGATGTCCTT GTCCTCGTAT CAAAACAGTT CTAAAGTTTCG TCTTTAGGGA	3900
TGTTTTTTTA GATATAAGCT AAAAATGACA CGAAATGGTT AGATTTTAAG GACATTGATG	3960
TCCG	3964

(2) INFORMATION FOR SEQ ID NO: 137:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 12666 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 137:

TGAGACCGTT ATTTGTATTA GGGAAATGGG TATCTATTTT TAATGCTGTG GGGATTTTGA	60
TTGTTTCTAT TATTCAAACC AAAAGCTTGT CAGGTATTGG AGCAGGATTG TTTAATCTAT	120
ATAACATTTT ATCTTATATA GGTGATTTAG TTAGTTTCAC TCGATTGATG GCATTAGGAT	180
TATCTGGAGC AAGTATAGCA TCAGCTTCA ATTTAATTGT TGGTTTGTTC CCGGGAATAT	240
TGGCTAAACT GACAATTGGA TTAGTATTAT TCATTCTTTT ACATGCGATC AATATTTTTC	300
TATCGTTACT ATCAGGATAT GTTCATGGAG CACGCTGAT ATTTGTTGAA TTTTTTGGTA	360
AGTTTATGA GGTGAGGA AAACCATTTT AACCTTTGAA GGCTTCTGAG AAATATATTA	420
AGGTTATTAC AAAGAATTAA TGGAGGATAT ATATAATGGA ACATTTAGCA ACTTATTTT	480
CAACCTATGG AGGAGCTTTC TTCGCTGCAT TGGGAATTGT ATTGGCGGTT GGATTAAGCG	540
GTATGGGGTC TGCTTATGGA GTTGTAAGG CTGGGCAATC TGCCGCAGCT TTAATGAAAG	600

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AACAGCCTGA AAAGTTTGCC TCAGCTTTGA TATTGCAATT ATTGCCCGGA ACACAAGGAT	660
TATATGGTTT TGTATTGGA ATTTTAATTT GGTGCAATT AACTCCAGAA CTTCTTTAG	720
AAAAAGCGT TGCTTATTTT TTTGTAGCTC TTCCAATTGC TATTGTAGGA TACTTTTCAG	780
CTAAGCATCA AGGAAATGTA GCAGTAGCGG GAATGCAAAT CTTGGCTAAA AGACCAAAAG	840
AATTCATGAA GGGAGCAATT TTAGCTGCCA TGGTAGAAAC CTATGCAATT CTTGCTTTTG	900
TCGTATCATT CATTGTGACC CTTCTGTAT AAGAAATAAA TTTGCAATTC AAAGGAGGTG	960
TCTAAATGAG CAATTAGAA AACTTACGAG AGTCTGTTAT TGAACAAGCT CATGAAAAAG	1020
GGCGTATGAA ATTATTGGAT TCCAAAAAGA AGATTGATGA TGAATTTGAA ATGCAAAAGT	1080
CGCTCATTAT AAAGAAAAAA GAAGCTGAAC ATGAACGAAA GTTAAAAGAA TTGCAACAGA	1140
AATATCAAAT AATTTTCAA CAATTAAAA ATAAGGAACG CCAATCAACG TTAGTATCAA	1200
AACAGAAAAT ATTTAAAGAA CTTTTCAT CTGCTTTACT AGAAATGGAA TCTTGGAGTG	1260
CAGATAAAGA AATGGAGTTC ATCTATCGAA TTCTGGAACG ATATTCACAA CAAGAGGTCA	1320
TAGTAACCTT TGGGGAACGG ACTTTAGCTA AATTCAATTT GGAACAATTA GAGAAATTGA	1380
AATTCTCTTT TCCAAATTAT TTATTTAGTG AACAACTAT CTCAAATGAA TCAGGCTTAC	1440
TTATTTCAAT AGGTAAAATT GATGATAACT ATTTGTATAA AACATTAATT GGATCGATTT	1500
CTAAGGAAGA AAGTTCAAGT ATCGCAAATC AAATTTTAT CAATTAAGGA TGAATTTGGT	1560
TAATCCTTCT TAGAAATTG GAGTATTCCA ATAAATTAG AAAGGTATTT TATGGATACT	1620
AATCTTTTTT CAAAAATAA TACGACGATT TCGGTAAAAG AAAACGATTT TATTACAGAA	1680
GAAAAATTTC AAAAAATTAT ACAATCCAAA GATACGGAGA CATTGGCATT TATCTTAGAA	1740
TCAACTCCCT ATCATTATC GATTGACATC TTAGAAGATC CTAGTCAGAC AGAGATTTCTG	1800
CTAATGACAA AATTAGTCAA TGATTATAGA TGGGCCTATG CTGAAAGTCC GTCTGATATA	1860
ATTGTGACTT TATTTGCTTT ACGATATGTT TATCATAATA TCAAAGTTTT ATTTAAATCT	1920
AAGGCGGCAA TTAAGAAAGA TTTTCTAAA TTATTAATTC CAATAGGGAT TTTTGATATA	1980
GAAAGTTTAA AACATTTAGT TTCTTCCTTA CATTGAGATA CACTTCCTGA TTTTATGGTT	2040
CGTGAAGTAG AATCAATTTG GAATGAGTAT GAACTTTTA ATAATATTCG TGTACTTGAT	2100
GTCGGAGCTG ATCTAGCATA TTTTAAACAT CTGAACTTT TATCTAATGA GTTAGATGAG	2160
GTAATGTCTC AGGTATTGT CGAAATGATT GACTTTTATA ATATTATTAC TGTAACCGT	2220
GGTTTATCTC AAAATAAGAG TCATGGGGAT ATTTTACAAT TACTTTCAGA TGAAGGAAGT	2280
ATTTCTGCTA AAGAATTTAT ATACATTGTA GAAATCAAG AAATATTTGT GTGGTTCAAT	2340
AAAATAAATC CAAGCTTAGA TTCAATCTTT TCAACTTATG AATTGAAGAT GCAGGACGCA	2400

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ACAATTTTCAT CTTCTGAGTT AGAATTTTTA TGTGATTAC TATTGTATAA AACTTTAGAT	2460
CAAGGAAGGT ACAATGTAGA GGGGCCGTTA GTTCTTGCTA GATATTTATT GGGATGTGAG	2520
TTTGAAGTAA AGAATCTCAG AATGATCATA TCAGCTCTTC AAAATACAAT TCCCTTTGAA	2580
TCAATAAAAG AAAGGATACG CCCACATTAT GGAAGCTAAT AAGTATAAAA TTGGCATAAT	2640
TGGTAGCCGT GATATTTATT TACCATTAG CATGATTGGG TTTGATATAT TTCCTGCCTA	2700
CCAAGAACAA GAAGCTATAA ATACACTAAG AAAATTAGCT CAATCTGATT ATGGTGTGAT	2760
TTATATCACG GAAGACATTG CTTCAATGAT ATTAGATACA ATTCGCCATT ATGATTCCCA	2820
AGTTGTGCCT GCTATTATTT TATTACCGAC TCATAAACAA GGTTTAAATT TAGGATTAAA	2880
ACGTATAGAG GATAATGTAG AGAAAGCAGT AGGACACAAT ATTTTATAAT AATGTACAAA	2940
ATTGTCTGTA ATATTATTCT ATAATTTTGT GACTTAGTAA GGAGAATAAC TTTGACTCAA	3000
GGGAAGATTA TAAAAGTATC GGGACCTCTA GTTATTGCAT CAGGTATGCA GGAGGCTAAT	3060
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AGAGATCAGG CATCTATCCA AGTCTATGAA GAAACATCTG GTCTTGGTCC GGGAGAACCT	3180
GTGTTACAA CTGGAGAACC TCTCTCGGTT GAATTAGGGC CAGGATTGAT TTCTCAAATG	3240
TTTGATGGCA TACAACGCCC ATTAGATCGA TTTAAATTGG CTACTCATAA TGATTTTCTA	3300
GTTCGTGGGG TAGAAGTTCC AAGTTTGGAT AGAGATATTA AGTGGCATTG TGATTCCACT	3360
ATAGCAATTG GTCAAAAAGT GAGTACGGGT GATATTCTTG GAACTGTCAA GGAAACCGAG	3420
GTAGTTAATC ATAAAATTAT GGTTCCTTAT GGAGTATCTG GAGAAGTCGT TTCTATTGCA	3480
TCTGGCGATT TTACAATTGA TGAAGTTGTA TATGAAATAA AAAAATTGGA CGGTAGTTTC	3540
TATAAAGGAA CGCTTATGCA AAAATGGCCT GTCCGCAAGG CGCGTCCTGT TTCTAAACGT	3600
TTAATTCAG AAGAACCATT AATCACAGGT CAACGAGTTA TTGATGCATT CTTTCCAGTA	3660
ACCAAAGGGG GAGCTGCAGC AGTTCCTGGA CCGTTTGGAG CAGGAAAGAC AGTTGTACAA	3720
CACCAAGTAG CTAAATTTGC CAATGTTGAT ATTGTTATTT ATGTCGGTTG TGGAGAACGT	3780
GGAAATGAAA TGACGGATGT ACTGAATGAG TTTCTGAGT TGATTGACCC TAATACCGGA	3840
CAATCAATTA TGCAACGGAC AGTTCTGATT GCTAATACTT CAAATATGCC TGTGCTGCT	3900
CGTGAGGCTT CAATTTATAC AGGAATTACC ATGGCTGACT ATTTTCGTGA TATGGGCTAC	3960
TCTGTCGCCA TTATGGCTGA TTCAACTTCA CGTTGGGCAG AAGCGCTACG TGAAATGTCA	4020
GGACGTCTAG AAGAAATGCC TGGTGATGAG GGTATCTCTG CTTATCTGGG AAGTCGTATC	4080
GCTGAATATT ATGAAAGAGC AGGACGTTCT CAGGTTCTAG GGCTTCCAGA ACGTGAAGGA	4140

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ACGATTACTG	CTATTGGAGC	TGTATCGCCA	CCTGGTGGAG	ATATTTTCAGA	ACCAGTTACT	4200
CAAAACACTT	TACGGATTGT	GAAAGTTTTT	TGGGGGCTTG	ATGCTCCGTT	GGCACAGCGA	4260
CGTCATTTTC	CTGCAATTAA	CTGGCTTACA	TCTTATTCAC	TATATAAAGA	CAGTGTGGGC	4320
ACTTATATAG	ATGGTAAAGA	GAAGACAGAT	TGGAATAGTA	AAATAACTCG	TGCGATGAAC	4380
TACTTACAAC	GGGAATCTAG	TTTAGAGGAA	ATTGTTTCGTC	TTGTTGGAAT	TGATTCTCTG	4440
TCTGATAATG	AACGACTAAC	GATGGAAATT	GCTAAACAAA	TTGAGAAGA	TTATTTGCAA	4500
CAGAACGCTT	TTGATTCGGT	AGATACATTC	ACTTCGTTTG	CAAAACAAGA	AGCAATGCTA	4560
AGTAATATTC	TCACTTTTGC	TGATCAGGCA	AATCATGCTT	TAGAGTTGGG	TTCTTACTTT	4620
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TCAGAAGATA	GATTAGATGA	AATCAAAATT	ATATCAAATG	AGATTACACA	TCAAATTCAT	4740
TTGATATTAG	AAACAGGAGG	TCTATAAATG	AGTGTATATA	AAGAATACAG	AACTGCTAGT	4800
GAAGTTGTTG	GGCCTCTTAT	GATTGTTGAA	CAAGTAAATA	ATGTGTCTTA	CAATGAGTTA	4860
GTTGAAATTC	AAC TTCATAA	TGGAGAAATT	CGTCGTGGAC	AAGTTTTAGA	GATCCACGAA	4920
GATAAGCAA	TGTTTCAGCT	TTTTGAAGGA	TCTAGTGGAA	TAAATTTAGA	AAAGTCTAAA	4980
ATTCGTTTTG	CTGGTCATGC	ATTAGAATTG	GCTGTATCTG	AGGATATGGT	TGGTCGTATT	5040
TTTAATGGGA	TGGGAAAACC	AATTGATGGT	GGACCAGATT	TAATCCAGA	GAAATATTTA	5100
GATATTGATG	GTCAAGCTAT	TAATCCTGTA	TCTAGAGATT	ATCCAGATGA	ATTTATTCAG	5160
ACAGGGATCT	CCTCTATTGA	TCATTTGAAT	ACTCTTGATC	GTGGTCAAAA	ATTACCAGTA	5220
TTTTCAGGTT	CGGGCTTACC	TCATAATGAA	TTAGCTGCTC	AGATAGCAAG	ACAAGCGACT	5280
GTTTTAAATT	CTGATGAAAA	TTTTGCGGTT	GTATTTGCAG	CAATGGGTAT	TACTTTTGAA	5340
GAAGCTGAGT	TTTTTATGGA	AGAACTCAGA	AAAACAGGAG	CGATCGATCG	TTCCGGTTTTA	5400
TTTATGAACT	TGGCAAATGA	TCCTGCAATT	GAGCGTATTG	CAACTCCCCG	CATTGCTTTA	5460
ACTGCGGCAG	AGTATCTAGC	TTTTGAAAAA	GATATGCACG	TTCTAGTTAT	CATGACGGAT	5520
ATGACTAACT	ATTGTGAAGC	GTTACGTGAA	GTCTCGGCAG	CTCGCCGTGA	AGTTCCAGGG	5580
AGACGAGGCT	ATCCGGGATA	TTTATATACA	AATTTATCAA	CTCTATACGA	AAGGGCTGGT	5640
CGCTTAGTTG	GTAAAAAAGG	TTCCGTGACA	CAGATTCCTA	TTTAAACAAT	GCCAGAAGAT	5700
GACATAACAC	ATCCAATTCC	TGATTTAACT	GGATACATTA	CTGAAGGGCA	AATTTATTTG	5760
TCGCATGAGT	TGTATAATCA	AGGTTATCGT	CCACCAATCA	ATGTTTTACC	TTCTCTCTCT	5820
CGATTAAAAG	ATAAGGGATC	TGGAGAAGGT	AAAACCTCGT	GAGATCATGC	TCCAACATATG	5880
AATCAACTGT	TTGCAGCCTA	TGCCCAAGGG	AAAAAGGTTG	AAGAGTTAGC	AGTAGTATTA	5940

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GGAGAATCGG CTTTATCTGA TGTAGATAAA TTGTATGTGA GGTTTACAAA GCGTTTGTAA	6000
GAAGAGTACA TAAACCAAGG ATTTTATAAA AATCGAAATA TAGAAGATAC GTTGAATCTT	6060
GGGTGGGAAT TACTATCAAT TCTTCCTAGA ACAGAGTTAA AACGTATCAA AGATGATTTG	6120
CTTGATAAAT ACTTACCTTT GGTAGAAGTT TAATCCGGAA ATGGAGTGAT TATCTATGGT	6180
ACGTTTGAAT GTAAAACCAA CTCGTATGGA ATTGAATAAC TTAAAGGAAC GTTTGACAAC	6240
AGCTGAACGT GGACATAAGT TATTAAAGGA TAAAAGAGAT GAATTGATGA GGCGATTTAT	6300
TTCTTTGATT CGTGAGAATA ATCAACTTCG GAAAGAAGTG GAAAGTTATC TAATTGATAA	6360
TCTAAATCC TTTGCAGTTG CTAATCATT AAAGAATTCT CAAATGGTGG AGGAATTATT	6420
TTCAATTCCA TCGAAAGAAA TTGAATTATT TGTGAGAAA GAAAATATCA TGAGTGTAAC	6480
AGTTCCTAGA ATGCATATGA ATATTACTTC TCAAAATGAG AACAGTGAAT ACAGCTATTT	6540
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ACTAAGACTG GCAGAACTTG AAAAAACGTG TCAGTTAATG GCTGATGAAA TAGAAAAAAC	6660
ACGTAGACGT GTAAATGGTT TAGAATACTC GATTATTCCA AACTTGTCGG AACTATTCA	6720
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GAAGTAGATC CTTTATTTAG ATTATTAATT AGATGAACAA ATATCAGCTT GGATAAGGCT	6840
TTAAGCCTTT CTAAGCTTTT TTTATTGACA GTATCAGGAT ATCTTTTCA AAATTTTGGT	6900
TTGTTAGATA ATGAAATGT TTCTACTAAT CTAGATTTAG GATTAGTAAA TCGTAAATGT	6960
AATTATATAG AAAGTAAGCG CGTCATAACA AGGTATCTAT CATTCATGGA GCTCCTCCTG	7020
TATACTATTA GTAAAGTAAA ACTATTGGAG GATATTTTAA TGCCACAACC TATTGTTCTT	7080
GTAGAGATTG CACAATCTCG TCGTTTGTGAT TCTAAAAAGA GAAATGATAT TCTGCTTAAA	7140
ATTCGTATTG GCAAGCTTGA AGTAAGTTT TTTCAATCTC TCAATCTCGA AATGGTAGAA	7200
CAGCTTTTGG ATAAGGTGTT GCTCTATGAC AATTCATCTA TCTAGCCTAG GGGAGGTCTA	7260
TCTCGTGTGT GGGAAAAC TG ATATGAGACA AGGAATCGAT TCACTGGCTT ATCTGGTTAA	7320
AACCCACTTT GAATTGGATC CTTTCTCCGG TCAAGTCTTT CTCTTTTGTG GTGGACGTAA	7380
AGACCGCTTT AAAGTCCTTT ACTGGGATGG TCAAGGATTT TGGCTACTAT ATAAACGCTT	7440
TGAGAACGGC AGATTGATTT GGCTAAGTAC AGAAAAGGAT GTCAAAGCTC TCACACCAGA	7500
ACAAGTAGAC TGGCTTATGA AGGGCTTTTC TATCACTCCA AAAATATAGT AGATTGAAAC	7560
TAGAATAGTA CACCTCTGCT TCTAAAACAT TGTTAGAAAT CGATTTTACT GTCCTGATCG	7620
ATTTGTCCTG TTCTTATTTT ATTTTACTAT AAATCCATCA GAAAGTCGTG ATTTCTATTG	7680

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AAATGAGGAC	TTTCTTTT	TACTCATCTG	CTTTCAAAA	GCATTCTAGT	CCATCTCCGA	7740
TTAACGATGG	ACTTTATCAC	CTCCTTCTCC	AGTCCTTGTA	TAACATCTTG	GAGTTGATTG	7800
ATGACATCTT	CCAAAGTTTA	AAAGGCTTTA	TTCTTAAATC	CACGTTTACG	AATCTCTTTC	7860
CACACTTGTT	CAATGGGGTT	CATCTCTGGT	GTGTATGGAG	GAATAAATGC	AAAGCCAATA	7920
TTAGTCGGAA	TCTTTAAGGT	ACTTGATTTA	TGCCATATAG	CATTGTCCAT	AACGAGTAAA	7980
AGATAATCAT	CTGATAAGC	TTGTGAAATC	TCCTATTCTT	AAAGCCCCTT	TAGCGCATAA	8040
CTTTGGCTCA	GCTTCTATTA	TCGCTCACAC	CATCCATCAG	AAGTTTAATC	TGAAGGTACC	8100
CAATTATCGC	CAAGAAGAAG	ATTGGGCTAG	GATGGGTTTA	CCAATCACAC	GTAAGGAAAT	8160
CTCTAATTGG	CATATCAAGG	CGAGTCAATA	CTATTTGGAG	CCCCTTTATA	ACCTCTTGCG	8220
AGAGAGACTA	TTGACTCAGC	CCTTACTTCA	TGCGGATGAA	ACTTCTTATA	GGGTGCTAGA	8280
GAGTGATAGT	CAGCTGACTT	ACTATTGGAC	TTTTTTGTCA	GGTAAAGCAG	AGAAACAAGG	8340
GATTACGCTT	TACCACCATG	ATCAGTGTG	AAGTGGTTCA	GTAGTACAAG	AATTCTTAGG	8400
AGATTATTCT	GGCTATGTGC	ATTGTGATAT	TTTGCGGCAG	TAACCTTAGGA	CTTTAGTCCT	8460
CTAGTTCTGC	CTATGCGATA	GCAGTCCAAG	GTTTAGGAGC	AAGGCGACGC	TAAGCTTGGT	8520
AAACTTCGAA	CCGCTCGTCT	GCTTATCGTC	AACTGGAAGA	AGCTGAACTT	GTTGGATGTT	8580
GGGCGCATGT	GAGAAGGAAG	TTTTTTGAAG	CGCCCCCCCA	AGCAAGCGGA	TAAATCATCC	8640
TTAGGAGCTA	AAGGTTTAGC	TTATTGTGAT	CAGTTATTTT	CCTTGGAAG	AGACTGGGAG	8700
GCTTTGCCAG	CTGATGAACG	ACTACAGAAA	CGTCAAGAAC	ATCTCCAGCC	CTTAATGGAA	8760
GACTTCTTTG	CTTAGTGCCG	GCGTCAGTCA	GTTTTAGCAG	GTTCAAAACT	AGGAAGGGCA	8820
ATTGAATACA	GCCTCAAGTA	TGAAGAAACC	TTTAAGACCA	TTTTGAAAGA	CGGACATCTG	8880
GTCCTTTCCA	ATAATCTAGC	TGAACGCGCC	ATTAAATCAT	TGGTTATGGG	ACGGAGTAAA	8940
AGAGTCCAGT	GGACTCTTTT	AGCCTAAGCT	CAGTTTAAAA	AAGCGAGGGT	GGTTATTTTC	9000
TCAAAGTTTT	GAAGGAGCTA	AAGCAAGAGC	TATTATTATG	AGTTTGTTGG	AAACAGCTAA	9060
ACGTCATCAA	TTAAATAGCG	AGAAATATCT	ATCCTATCTT	CTAGAATGTC	TTCCAAACGA	9120
GGAAACTCTC	GTAAACAAAG	AGGTTTTAGA	GGCTTATTTA	CCATGGACTA	AAGTTGTACA	9180
AGAAAAGTGC	AAATAAGAAA	TCTCCAGATT	AGGAACTATC	CGTGAGTTCT	CCAGTCTGGA	9240
GATTTTTCAA	TAGACTTCCT	GCGAAACAAA	ATATGGTATA	ATAGTTCTAT	GAATGATGAA	9300
GCAAGTAAAC	AACTAACCGA	TGCACGATTT	AAGCGTCTTG	TTGGTGTTCA	ACGCACGACT	9360
TTTGAAGAGA	TGTTAGCTGT	ATTAAAAACA	GCTTATCAAC	TTAAACACGC	AAAAGGTGGA	9420
CGAAAACCTA	AATTAAGTCT	AGAAGACCTT	CTTATGGCCA	CTCTTCAATA	TGTGCGAGAA	9480

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TATCGAACTT ATGAACAAAT TCGGCTGTT TTTGGTATTC ACGAAAGCAA CTTAATCCGT	9540
CGGAGCCAAT GGGTTGAAGT AACTCTTGTT CAAAGTGGTG TTACGATTTC AAGAACTCCT	9600
CTCAGTTCTG AGGACACGGT AATGATTGAT GCGACGGAAG TAAAAATCAA TCGCCCTAAA	9660
AAAAGAATTA GCGAATTATT CTGGTAAAAA GAAATTTTAC GCTATGAAGG CTCAAGCGAT	9720
TGTCACAAGT CAAGGGAGAA TTGTTTCTTT GGATATCACT GTGAACTATT GTCATGATAT	9780
GAAGTTGTTT AAAATGAGTC GCAGAAATAT CAGACAAGCT GGTAAAATCT TGGCTGACAG	9840
TGGTTATCAA GGGCTCATGA AGATATATCC TCAAGCACAA ACTTCACGTA AATCCAGCAA	9900
ACTCAAACCG CTAACAATTG AAGATAAAGT CTATAACCAT GCGCTATCTA AGGAGAGAAG	9960
CAAGGTTGAG AACATCTTTG CCAAAGTAAA AACGTTTAAA ATGATTTCAA CAACCTATCG	10020
AAATCATCTA AACGCTTCGG ATTACGAATG AATTTGATTG CTGGTATTAT CAATCATGAA	10080
CTAGGATTCT AGTTTTGCAG GAAGTCTATT ATCAAAAATA CCATCAAGAT TATATAAGAT	10140
TGATACAGGA AAAGTTTTAT TTGATGGTGT AAATATTAAT CAAATAGATA AAAAAATATT	10200
AAGTCAAAAT TTAGGAGTAG TTCCACAGGA TTCATTTTTA TTGAACCGAA GTATTCTTGA	10260
TAATATAACT TTAAAGCAGC AAGTTACTTC ACAAAGATA GAGGAAGTTT GTAAAGCAGT	10320
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GGGGTCAAAT ATTTACGGTG GGCAAAGGCA ACGGATAGCA CTGGCACGTG CATTAAATAA	10440
TAATCCTAGT ATTGTAATTT TAGATGAAGC AACTAGTGCA TTAGACACTA TTAATGAGGA	10500
AAGAATAACA AAGTATATAC AAAGTCAGGG CTGTACTCAA ATAATTGTAG CTCATAGATT	10560
GTCAACGATT AAGGATGCGG ATGTTATTTT TGTAATGAAA GGTGGTAAGA TTGTTGAGTC	10620
AGGAAATCAT AAGTACTTAA TGGATCTTGG TGGAGAGTAC TACAGCTTAT ATACAAAAG	10680
GAAATGAGGT GTAAAGAAAA TGAAGAAAGA AAATGAATAT GTAATTTTAA CAACAGCCTC	10740
ACTAGGGGTG ATGATTGGAA TAGTGTTTGC AATTTTTTTA GATTTTCCAG TTGAATATGG	10800
TATTTCTTTA GGCTTGTTGA ATGGAATAGT ATTGGGTTTC CTGATTGTTT AAAAAACAA	10860
TAAGAATTAA GCATAATTTT TTGCTGTAAA CTAAGGAGTA GAGATGGCTA TAGTTGAAAT	10920
TATAAATCTA ACAAAGGCT TTAAAGATAT TGAAGTTATT CATAACACTT AAATAATAGA	10980
GCAACTACAG TAGTAGCTTA AAAACATGAT TAAATCGCTA TTCTTAGGAG TAGCGGTTTT	11040
TCTTTTGTG TAATACTCTT TGAAAATCTC TTCAAACCAC GTCAGCTTTG CTTTACCGTA	11100
CTCAAGTACA GCCTGCGGCT CGCTTCCTAG TTTGCTCTTT GATTTTCATT GAGTATAAAA	11160
AGGGTCAAGT AAGTATAGTA AATTGAAATA AGATATGAAC AAATCGATTA GAAAAGTCAA	11220

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ATTAATTTCT AGAAATATGT TAGAAATTGG TTTGAATTCC GCAATCAATT TGTTCAGTTT	11280
TTATTTTCATT TCATTTTATT TAATTAGATT TTCCAATTTT TTAATTCAG CTAAAAATCC	11340
CCAATCGTAG TGATTGAGGA TTGAGTAAAT AAATCTTAAA CAATACCTTG TGCAATCATG	11400
GCATTTGCTA CATTTTCAAA GGCAGCAATG TTAGCTCCTG CAAGGTAGTC TTTATCAAGA	11460
CCGTATGTTT CTGAAGTCGT TTTAGCTGTG TTGAAGATGT TTGTCATGAT GTCTTTGAGA	11520
CGGCCATCAA CTTCTTCACG AGTCCATGAG AGGCGAAGAC TGTTTTGGCT CATTTCAAGA	11580
GCTGAAACGG CTACACCACC AGCGTTGGCA GCTTTTGCAG GTCCGTAGAA GATACCATTT	11640
TCTTTGTAAA CTTTGATGGC ATCAAGGTCG CTCGGCATGT TGGCACCTTC AGATACACAG	11700
ATAACGCCTT GAGCAACCAA ACGTTTAGCT GCTTCACCGT TGATTTCTGT TTGAGTGGCA	11760
CATGGAAGAG CAATGTCATA GTTCCAGCG TAAGTCCATA CAGTACCTTC GTGGTAGGTT	11820
GCAGTTGCTT TTTCAGCTGC ATACTCAGTC AAACGAGCAC GACGTTTTTC TTTAACATCA	11880
ACCAAAAGAT CGAAGTCGAT ACCATTTTCA TCGATGACAT AACCATTTGA GTCAGAAACA	11940
GAAATAACAG TTGCACCGAG TTCAGTTGCT TTTTGAAGAG CATATTGAGC AACGTTACCA	12000
GAACCTGAAA TAACGACTTT CTTACCAGCA AAGCTGTTAC CGTTAGCTTT GAGCATTTCT	12060
TCAGTATAGT AAACCAAACC GTAACCAGTT GCTTCTGGAC GAATCAAGCT ACCACCAAAT	12120
CCAAGAGGTT TACCAGTCAA GACACCAGCA TCAAATTGGT TAAGACGTTT GTATTGACCG	12180
TAAAGGTAAC CAATTTACAG TCCACCAACA CCGATATCAC CAGCAGGTAC GTCAAGTGAT	12240
GGTCCGATGT GTTTTTGCAA TTCAGTCATG AAGCTTTGGC AGAAGCGCAT CACTTCAGCA	12300
TCTGTTTTAC CTTTAGGATC GAAGTCTGAT CCACCTTTAC CTCCACCGAT AGGAAGTCCA	12360
GTCAAGACAT TTTTAAAGAT TTGTTCAAAT CCGAGGAATT TCAAGATCCC TTGGTTTACA	12420
GTTGGGTGGA AACGAAGTCC ACCTTTGTAT GGTCCAACAG CTGAGTTGAA TTGAACACGG	12480
TAACCACGGT TTAATTGAAT TTTTCCATCA CGGTCAACCC AAGGAACACG GAAAGAAACC	12540
ACGCGCTCAG GCTCAGTAAT ACGTGCCAAG ATATTTTCTT CGATATACTC AGGGTGTTTT	12600
TCAAATACAG GTTCTAAAGT GTTGAAAAAT TCTTCAACAG CTTGGAGGAA TTCAGCCTCG	12660
TGCCCG	12666

(2) INFORMATION FOR SEQ ID NO: 138:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1083 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear



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(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 138:

AGCAACTGTT GTGAACCAAT TCCGATAAAT TCCAAGAATT GGTTAATAGA GCCATTTTGA	60
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ATCAGCATGA GCCAGAGTTG ACGGTGTTTG AGACGGGTCA AAAAGAGGGC CGTCGGATAA	180
CTGATAAGCA GTGCCACAAA GGTCACAATG CCTGCATAAA GCACTGAGTT GAAACTCATT	240
TTAAGATAGG TCAAGTTTGG TGACGCAAAG TAAGATTGT AATTTTCTAA ACTGAACTGG	300
CCTTCGATGT TGAAAAAGGA TTGACCGAAA ATCAAGACCA AGGGTGCCAA TACAAAGAGC	360
GCAATCCAAA GCATGTAGGG TACTACAAAG AGTTTAGAGC TTGTTTTCTT CATCTCTTTC	420
CTCCTCGATT GCATTGATCA AACCTGCTTC TTGCTCTTCG ATTTCTACGT ACTCCTCAAT	480
ACGAGCATCG AACTCTTCTT CGGTTTCATT GAGACGCATG ATGTGGATGT CTCTGGTTC	540
AAAGTCCAGA CCGATTTCCT CACCCACGAT AGCCTTACGG GTTGAGTGGA TCATCCATTC	600
ATTTCCAAGT TCGTCATAGG CGATAATTC ATAATGAACT CCACGGAAAA GCTGGGTATC	660
GACCTTAACT TGGAGCTTGC CTTCTTCAGG AAGGTAATG CGCAAGTCCT CTGGACGAAT	720
AACGACCTCA ACAGGTTTCAT TTGGCTTCAT CCCACCATCA ACCGCTTCAA AGCGTTTGCC	780
GTTAAATTCG ACCAAGTAGT CCTCAATCAT GGTACCTGGC AAGATGTTTG ACTCCCGAT	840
AAAGGTGGCA ACAAAGTGGT TGATTGGCTC ATCGTAGATG TCCACAGGGG TTCCAGACTG	900
GACAATCTCG CCATCATTCA TAACGAAAAT CCAGTCACTC ATGGCAAGAG CTTCTTCCTG	960
ATCGTGAGTG ACAAAGACAA AGGTAATGCC CAATCGTTGT TGTAAATCAC GCAATTCGTA	1020
CTGCATGTCT GTTCTCAATT TCAAGTCCAG CGCTGATAAA GGCTCGTCCA ACAAGACCAC	1080
ACGGGGTTGG TTGATGATAG CACGGGCGAT GGCCACACGC TGACGTTGTC CTCCAGAAAG	1140
TTTGCGGATG GAACGTTTTT CATAACCTTC CAACTGAACC ATCTTGAGAA CTTCCGCTAC	1200
ACGCTGCTCG ATTTCTTTCT TATCAATTTT ACGCAAGCGA AGTGGAAGG CAACATTTTC	1260
AAACACATTC ATATGTGGGA ACAAGGCATA GGATTGGAAG ACGGTATGTA CGTCGCGCTT	1320
GTTGGTTGGA ATATCATTGA TACGAACACC GTCTAGCATG ATATCTCCTG TCGTCGCATC	1380
CAGTAAACCT GCAATAATGT TTAGGATAGT TGATTTCCCC GAACCAGATG CACCTAGAAG	1440
GGTGTAGAAT TTCCCTTCTT CCAACTCAA GTTGATGTCT TTGAGAACCT TGGTGTGCT	1500
GTCTTCAAAA ACTTTAGAGA CGTTTTTGAA TTCGATAATT GGCTTTTCA ATTGGCATAA	1560
ATTCCTTCTT TTTCATAGAT TAACCGATCG GGGCTCTGTC AGGTCCCCAC TACCTCTTGC	1620
AGGGAGTAAA ACCACCTGCA TACATCTTCG CTACCGATAG GCTTTCACCC AAGATCCGGA	1680

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CTTCTCTTC AAGCGTAATA CCTGAGTGTT CCTTGACTTT TCGATAACC GATTGGATCA	1740
AGTCCTCGTA GTCTTTGGCC GTTCCATCTG CGACATTGAT CATAAATCCT GCATGCTTTT	1800
CTGACACTTC TACGCCACCG ATACGATAGC CTTTCAAGCC AGCTTCTGAA ATTAAGTGAC	1860
CTGCAAAATG CCCGACTGGA CGCTTAAAGA CCGAGCCACA AGATGGGTAT TCCAAAGGTT	1920
GCTTGAGTTC ACGTAGGTGC GTCAAGCGGT CCATTTCTCTG CTTGATAACC TGATGGGTTC	1980
CTGGAGCTAG GGCAAATTTA ACTGACAAGA CAACTGCACC AGACTCCTGA ATAGCTGAAT	2040
GACGGTAACC AAAAGCCAAG TCTTTAGCAG ACAGGGTTTC GATTTCTCCA TCCTTGGTCA	2100
AGACCTTACA AGACTGCAAG ATGTGAGCAA TCTCGCCACC ATAGGCACCC GCATTCATAA	2160
AGACAGCACC GCCAACGCTT CCTGGAATAC CACAAGCAAA CTCAAAGCCA GTTAAACTAT	2220
GACGGAGGGC AATGCGAGTT GTTTCAATCA AGTTAGCCCC AGCTTCTGCT TCAATGGTAT	2280
AGCCATCAAC AGAAACGTTA TTGAGCTGT CACACAAGAT GACAAATCCA CGAATCCCAC	2340
CATCACGAAC GATGATATTG CTTGCATTGC CAAGAACCAT CCAAGGGATA TTTTCTTGGT	2400
TGGCAAATTT CACAACGCGA GCCAACTCAA AACGATTTCTG TGGAAAGACC AAATAATCAG	2460
CCTCTCCACC TACTTTTGTA TAACTATAGC TATGCAAGGG TTCCTTAAAA CGGATATCAA	2520
TTCTTTCTAA GATTTCAAGC ATTTTCTCTC TTACAGACAT GTCACTCTTC CTTTACAAA	2580
ATTCATTCCA TTATACCATT TTTAGAGACA TTTGACGACC ATAAAAATAC CTTGTTTGGG	2640
TTTTGCATAA GAAAAAGAGG TTCCCCCTT TTTATGATTT TTTACAAAAG ATTTCTTGG	2700
TTCCATAGGC GACCAGAACG AGCTCCAGTG CTAGAATCAC TTCAACCAAG ACTGGATTG	2760
TCAACCAGCC TACTTGGAAA AGAGATGGTG CCAGATCAAA GAAGGCATGC AAGCCATAGG	2820
CTGCTAGGAG ATAAATCCAT TTCTTCTGGC GAACAGCTTG GTAAACCCAA ACTGTCAAAA	2880
GTAATTGGAA ACCAAGCGCC AAGATTCTGCT CAAAACCAAG CAAATAAATC TGCCAGACCG	2940
AAAGTGACTG AATGGTTTTT AACATATTTT CAGACAGTAA TTGCAAAACL TGTGGATTCT	3000
GAGTTTGAAC TGCCGAAAGA ACAATGTAAA GATTGAGTAA ACTAGTAAGG CCTAGAAAAA	3060
TCAACTCCAA GCCACCATGC CCC	3083

(2) INFORMATION FOR SEQ ID NO: 139:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 15363 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 139:

931

CCGGAGGATA TTGACCACCA CCAAAAGCAG GGGGAAAATC GAAATCAACC AATAGTAGGC	60
TACTGCGACA CTGGTCAACT CACTATCTGA TGCTTGATAA TAATGCAAAA AAGCTTTTAA	120
TAAAGGTTTG TCTATCAGCT CTTTCCACCA CTTTTTCATG TCATACTCCT TCACTTATAA	180
TCTTATACTC AATGAAAATC AAAGAGCAAA CTAGAAAAGCT AGCCGCAAGC TGCTCAAAAC	240
ACTGTTTTGA GGTGTAGAT AAGACTGACG AAGTCGATCA CATACATACG GTAAGGCGAC	300
GCTGACGTGG TTTGAAGAGA TTTTCGAAGA GTATTAAC TAATTTCTT ACCAATTCCA	360
CCATATCATA CGGTAGGGTA TTGGCAGCTT CCTTCAAGGA ATAGTTCTCT AAGTTATTTA	420
CATTTTGTCTG TAATTTCTTG GCATACTTAG TCGTAATCAA TCGTTTTTCT TCGTATTCGA	480
AAATCAACTT GCGCTCCAGA TAATAGCCTC TCAGCATTTT ATCGATATTG TTGGGTTTGA	540
CACGATTGAT AACCCGTTTG ACAAAGGCAC CACTGCTGAT AATAGCTGTT TCTCGAAGAC	600
GAGACTCCTG CATAAACTA ATCAAAGAGC GTCTGTAGAC TCCCTTCAGG TTTTCCAAAC	660
TTTCAATAAT CATCTCTGTA TTGGCAAGAT AGAGCTCTGC AATTGGTCA TAATCAAGAG	720
CACGGAGACG GCTTTGCTCC TTGTTCTTCC AGCTACGGAA GGTCTTTCCG AGAGTAAAAA	780
CTTCATGAAG GAGAAAACGT AAAATCCTCA AGGAAACAAG AAAATAATAG GTCAGTCTTG	840
AGGCAAGTTT ACGATTGATT CCTTGTCTA TATTTTTCAG ATAACGTTGG TAAACTCGGT	900
AAGCACGATT GCTAATGTTT CCCTCTTCAT AGGCCTGTTT CAAACCATCA CTTTCAATAC	960
TAAGAATCAA GAGTTTCAAA GCAGCCCAGT CTTCTTGATC ATCCTGGTTT TCTTGGCTTA	1020
AAATGAGATT TTCAATACGT CCATGATAAT TGTCAATAGC CGCATAGAGG GGAAGTTTAT	1080
TTCTGGTGTC TTCCAACCTT TTTTCCAACCT CTAGCGTTAC TTCATTCAAA ATGGCGATAT	1140
GCATAAGATA ATCCTTGCTT TCTTCTCTT CATCAGAAAG ATGAGGCAAG ACCAAGAGAC	1200
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TTCTATAGGC ATAATAGCCA TAGATCATAA TAAACGAAT GACAAAAAGG ACAAAGGTAA	1440
GGGCGATAAG AGATAGCAAT AAAAGTAGAG GATTATAGAT TGGATTGGTC AAGATAGGTT	1500
CTGCTATCAT TTCCAACCTC ATCCCTAAAA TCACAAAGAC AGAACCGTTG AGCATAAAGG	1560
TCACTGTATG CCAGACCGTC TCGGTCACCG TATCCACTTG GGCTTCGAGG AGCGTGATTT	1620
TCTTGAAGCG ACTTGCCTTT AAAATTCCAG CAACTACGAC GGCAATAATA CCTGAAACAT	1680
GAACTTCTTC TGCCAGAAAG AAGGTCACTA GAGGCAAACT CAATTCTAAT AAAAGTTCAC	1740

932

TGGCAATATC CGTTGCGCGC ACACTTAGCA AGAAGGTATG GAGGAAGCGG TTGGTCATGG	1800
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GCCCCAGAGA AAAAGCTCCA GTTGTCCAAG CTGTCAAAGC TACCTGAAAA GCCACCAAAC	1920
CAGAAGCATC ATTCAAGAGT CCTTCGCCCT TAAGAATATT GGACACGCGC TTAGGAAAGC	1980
TAAAACGCTC CGAAAGAGAG GCAAAGGCCA CCAAGTCCGT AGGACCAAGG GCTGCCCCAA	2040
CAGCCAAGCA AGCTGCCAAG GGAAGGCTGA ACCAAAGAAG ATGGGCCAAG CCACCCAAAC	2100
TCAGGGTCGA GATAAAAATC ACTGGAATA TGAGATAAAC AATGATTCGC CAGTGTTTTA	2160
AAATAGCCGT AACATCTGCT TCTTCAGCCT CTCGGAAAAG CAAGGGTCCG ATAACCAGTG	2220
CCAAAAACAA CTCCTGATTA AGGTGAAAGT CAGTATTGGG TAAAAAGAGA CCAATCACAA	2280
TTCCCAAAAG AATTTGCACC AAAGGGAGAG GCAAAAAGGG CAGGAGCTTA TTGGTTGTAC	2340
TTGAGACAAT CAAAACCAAGT AAAAATAGGA TGAGGTAAAT CAGTAATTCC ACGCACGTCC	2400
TCCTTAATCT TTTTACAAC AGGATTCAAA TATCTCCTTC TGCTCTTGA TTTTGTGTC	2460
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AAATCCCTGC CTTAGCTTTT ATCACAAACT GGTCCAGTGT CTCATGGCCT TGCAAGATTA	3000
ACTGGGCATT TGTCAAGTCA GCCTGATGCA AACGCTCTTG GGTCTTTTCC AAGGCTTGCT	3060
TCTGAATATC AAAGGCATAG ACTTGCTTGG CTAGCTTGGC TAAAAAAGC GTGTCATGAC	3120
CATTTCCCAT AGTCGCATCC ACTACGACAT CCTCTTTTGT CACGACCTCA GCCAAAAAAT	3180
CATGTGCCAT CTCAAGTGGT CTTTTCATTT TCAAACCTCT GTTTTACAGC CTTGCATCCT	3240
TGAACACTTC CACGACGTCG CATCTCCATC TCAATGCTGT TGAGGACTTC CCATTTATTG	3300
AGGCTCCACA TAGGACCAAG CAGCATATCC CTAGGCGCAT CTCCTGTAAT TCGATGGATG	3360
ACGATATGTT TGGGAATAAT TTCCAGTTGG TCACAGATGA CCTGACATA TTCGTCCTGA	3420
CTCATCAATT GTAAACGCCC CTCATGGTAA TCTCGTTGCA TACGAGTATT TGTCATAAGA	3480
TGGAGCAAAT GCAGTTTAAT CCCTTGAATA TCGTTATCCG TGACACAACG GCGGACATTT	3540

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CGGTTAATCA GGTGAGAGGT TGCTTCATAA GTAGTTTGCA AGCCCAATTC AACCGTCACA	3720
TGCATGCACT CCGATAACTC AGCCAAATAT TCGATGGTTT CGTCTGGTAA ACAGTCTGGG	3780
CGCGTTCCAA TATTGATTCC TACCACACCT GGCTCATTGA TAGCCTGTTT ATAACGCTCT	3840
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CGAACATCCG GCCACTTGCG GTGCATAAAG TCAATTTCTT TATAAAATG CTCACGGATA	3960
GGCGCATCCG GTGCCACAAT GGCATCTCCA GAACCAGAAA CCGTACAAAA AGTACAGCCC	4020
CCATGAGCCA CAGTCCCATC ACGATTGGGA CAATCAAATC CCGCATCAAT AGGGACTTTA	4080
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GTTTGATAAG AAACAAAAGA GAGGGTATAA AGAGTCAGCT AAAAAGCTAG CGAATTGGCA	5280

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CGAACCTGAA TCAGCCCCCTC AAAAGGGACT GTATATGAAC GAACGCTATC AAAACTTGAA	5460
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TCTGAGAGGG AAGCGTCAAG TGAGAATTGA CATGGGATTG GTACTTATGG CCAATAACCT	5640
CCTAAAATAT AGTAAAATGA AATAAGAACA GGACAAATCG ATAAGGACAA TCAAATCGAT	5700
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GGTCTTTAAT GATAAAGAAG GTATCAAAAT TTCTAGTCTT CTTTTTTACC TTTAGTAACT	5940
ACTAATCCTG CACTCAAACC TAGAAGAGTT AAACCTGCTG CTACTGCTGC TTGGCTTGC	6000
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TTACTTCCAT CAGGATTAAT CGCTGTAAAG ATACGTTCTT TTCCAACTTT TCCTTCTTGT	6240
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TGAGTGCTTT CTTGAGGCAA TTCACTTGGT GCAAGGAAGG TCATCTCAAT CATCGCAACA	6660
CCGCTCTTAT CTGCTTTACG CTCCATACGC CATCTCATAG CTTTGGCTTT GATAGCTTTA	6720
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GACCAGTTTG TCCAACGACG ATTTTCTGAA TGATCTCCGT CATTGAGATA GTCAACGCGG	7080

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TCAGCAACAA GGTACTACC AAGGACACGG CCTCGAACAG TAAATTGACC TGCTTTTGTG	7260
AGATTTTCCG CTGGAAC TTC CATTCA ACTGTCAGGT CTTTGTTC GTAGCCGTCT	7320
TTACCTGTGA AGTAACTGG AACCTTAGTC GGCAATTCAA GTGCTTGACC TACTGTAGC	7380
AAGCGAGCTT GTTTAACCGC AGCAACTGGT TTATGAGAAA GTAAGCTCTT ATCCTTAGTG	7440
AAGTGCAGAC GGTATTCTCC TAAGATGTCG CCATTTTCAG CTTTCGGAT GACACGAACT	7500
GGCTCACCTT CACGAACGCT TGAACGACG GTAGCGAGAC CATTGTGCT AACACTTGCT	7560
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936

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937

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TGTTGTTCTT CAAGTTTGG TGTTAAAATA GTTGTCCTCAT TTTTCTCAAC ATGCACCTTA 11700  
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GGCTGTTTGT TGAATGCATG GACAGCAATC ACATTCTCAC GACCATCTTT TTGAAGGTAT 11820  
TTGGTGATAT CATATGAGAA CTGGTTATAA CCATTTGGAT AATGCCCCAC TAACTGACCA 11880  
TTGACATAAA CTTGAGAATC CATGTAGACG CCATCAAAG TAAGGCGAAC ATTTTCTTG 11940  
AGGTCTTTT CATCTAGTTT GAAAGTCTTG CGATACCAAG CTTCCCCACC GTTGAGCTGT 12000  
CCACCTTCAT TTTGTGCAGG AGATTCATGA TCGAAATCGT TAAAGATACT CCAGTCATAC 12060  
GGTAAATCTA ATTTTTCCTA CGTAGATACG TCTGCATCAG GTTTAATGGC TTCCTTAGAA 12120  
TTTGCAATGA GTTTAAAGTA CCAATTTTGA TTAATATCCA CTTTCTGTC TTCAATCATT 12180  
TGATTCACCT CTTCAATTGT TACAGCTTTA GCATCTTCCT TGAGCGGTTT TTCTTGATTT 12240  
GAAGCTGTG ATTCTATCCT TGGAGCTTTT TCTTCCGGTT TAGCAGACAC TTTTCTCTT 12300  
TTTGGAGTTA CGGCTTCATC TTCTTCTTC TCAGATGCAA TAGCCTCAGT TGAAGTAGGT 12360

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TCACCTTGTT CTGTCCTTC AACTATATTT TTAGTTTCCA AAGCTTTATC AGCCTTTTCT	12420
TCTACTATCA TTTTTTCCTC TTTAGGTTTC TCAGCAGTAT GAGTAATAAG TGTTCATCC	12480
GCATAAACTA CAGATTCTCC AGCTATATTT CCTCCTAATA AACTGCACA AGTCCCAATC	12540
ATTACTGAGC AAGCTCCAC AGCAAACCTA CGAATGCTAT AACTCTTTT CCGATTCCAA	12600
TGGCCTTTCC CCATAAAACC CTCCTTATAT TATATTTAGT GCAGTTAGCT ACTACCAAAG	12660
CCCAAGTGGT ATACATGGTA TGACAACCTA GTTTCACAA TTTACTCTC GCGAAAATCC	12720
AATTCAAAC TCGTCAGTGT CGCCTTGCCG TAGATATGAT TACTGACTTC GTCAGTTTCA	12780
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CCATGTTTTG AGCTGACTTC GTCAGTTTCA TCTACAACCT CAAAACCATG TTTTGAGCTG	12900
ACTTCGTCAG TCTTATCTAC AACCTCAAAA CTGTGTTTTG AGCAACCTGC GGCTAGCTTC	12960
CTAGTTTGCT CTTTGATTTT CATTGAGTTT ATATTTTATA GGAGCGCATT ATTTTGCTTT	13020
TGCTGCGTAC TCTTCGTTAC GTTTGATCAT TTGTTTCTG TACCAAGCAA AGATACCGAT	13080
ATAGAATACA AGGAAGACTA CTGCACCAAG GATTGCTTTG ATATCACCAG TTGTAGTGT	13140
ACCAATTGTC CAACCAAGAA GTTTTTCGAT TGGTCCTTCA AGAGTAGAGT GAGTAATCAA	13200
TTGAGTTTGG CTCACACCTT CTGGAAGGC ACCTACACCT TTAGCAAGTT CTGTTGCAA	13260
TGGTGCAATA AGTGACCTG AAAGAAGGAA GAGTGGCAAC AAGAGTTTC CGAAGATAAT	13320
CATACGGAGC AATTACCAC GAGTTACAAC CAAGAGAGCT GGAGTAACAC CCATAGCGAT	13380
GATACCTGCA AGTGGCAAGA TACCATTTC AACTTTTGAA AGAAGCACTG CTTCAATCAA	13440
CATGATTGGT GCAAGTACGT TGGCACAAGC CCAGATTTC GCACGACCAG CGATGAATGG	13500
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ACCTTGATGAT AGTGGTTCTA CGGCTGCGAT GAACCATGAA CCGATAAGTG AGAAGAGTTC	13620
CAAAGATACA CCGGCAGTCA AACCAAGAGA CAACCATCCT TTGATAACAA GACGCCATTT	13680
ATCTGCATCT GCAACACCTG CAATTGGATG TGGAGTTCCC ATAATACCGA TAACGATACC	13740
AAGGATGAAA CCGATGAAGA ATTTAGATCC CCAGAAACCG ATTTCTTGT TCAATTTAGC	13800
AGCATCAAAG TCATATTTAT CAAGGCCTGG GAAGAATTTT TCAAAAATCT TATCCAAAAC	13860
CATGATAACT GGGTTCATCA TGTAGTTCAT GTGAGTTGAT GTCATTGGTG ATGAACCTGG	13920
GGCGTTAAGA AGGTCATCAA ATGTAGGTTT CATCAAGTCA GAGTTGATAA TTTTCAACAC	13980
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GTTATCAGCA TACCATTAA TCAAGAGACC TGTGATAGAC AAGTGCCAGA TATCAAAGAT	14100
ATCGACATCA AGTGTATCTG TTTTCTTCAT AGCTAGCATC ACTATGTTGA CAATCAACAT	14160

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GATGAGCAAG AAGTATAGTG TCCAAGCAGA ACCCCAAGTG ATTGTAGCAA GTGGTGCCCA	14220
ACCAACGTCG GTAATACTCA ATTGGATACC AGTGTMTTCA ACGAATTTTG CTAGTGATGC	14280
TGAGAAAGCA GTGTTTAGCA TACCGATGAT AGCACCGATA CCTGTAAGAG CGATGGCAAG	14340
TTTGATACCA CCTTCAAGCG CTTTGGAGAA TTTCACTCCA AAAAGTAAAG CCAATACTGT	14400
CAAAATGATT AACATGATGA CAGGTCCACC CATTTCTAAG ATGGGATTGA AAACCTTTCC	14460
GATTAGGTCA AAGATTGCAT CCATAACAGT TCCTCCCTTT TTGATGTTAT ATGAATGTTA	14520
ACAAATTAGA ATTAGCTTAA TCCGTGTTCT TTAATAGCTG CTTCAATATT GTCAAATACT	14580
GGAGCGCTCA TTGCTGGGAT ACGGAATAAG ATTGGCCCAG CTTGATAAC TGGGATACCT	14640
GGTTCAAAAC CAAGGTCTGT TGCAGCGATT GGTGTAAAGA TATCGTAACC TTTCATAAGG	14700
TCTTCGTTTA CATCTTTCAC CATGACTGCA TCACAGTGAA CATCATAACC ACGGTTTGAA	14760
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GGTTGCTTCA GCAATGTAAG TATAAAGGGC TTCTGGTTCA GAAATTTTTG ATAGGTCTTC	14940
AAGATGACCA TTTCTGTGA AGAAGTCCAT TAACTGAGCA AGAATGTTCCG TTTGACTTGA	15000
ACTTGAATTA TTAATGATAA AGAAGAGTAG GGATACTTCT ACTTCCTTAT CAGGAGCTAT	15060
CATATTGTGA AAAGTTATTG GTTTTTCTAA TCGAACAACC ACCACTTTCT CAGCTAGATT	15120
ATGAACAATA TCTGTGTGAG GAATCGCTAC ATTTGGCAAG TCCTTTCCTA GAAATTCAT	15180
ATCTAAACCA GTTGGAATG ACTTTTCACG CGTGATCAAG GCTTCACGAT AAGTTGGAGT	15240
GACAATTTCT CGTTCTTCCA ATAAAGTTGC AACCTGATCA AAGAGTTGTT CTTGACTATC	15300
CGCTTCTAAG CAAAACACAA GGTTTTTGTC AAAGAAATAA TCTAATACCA TAAGTTTTTC	15360
CGG	15363

## (2) INFORMATION FOR SEQ ID NO: 140:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 28882 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 140:

TAAGACTATT TAATAGTGGG GTGAAATAGG ATACGAACAA ATTGATTAGG AAAATCAAAT	60
GAATTTATAG AAATCTTTTA GCAGTTATGT TATCCTATTC TAGTTTCAAA ACGCTATAGA	120

940

AGCAGCATTG TGCTAGTCKA GATTCAGTTT ACTATACTAA AACGAGTAGC TTGAAATCAA	180
AAAACCCACC CTCACAGGCA GGTTTTATCT GTATTATTCA GCTAGATTAT GCTTTACCTT	240
CTGAACCGAA TACGTCGATA CGTTCTTCAA CCGATGCTTG GATAGCTTTT ACACCGTCAG	300
CCAAGAATTT ACGTGGGTCG AAGAGTTTTT TCTTGTCGTA TTCTGCTTCG TTTGCTTCGT	360
AGTCACGAGC AAATTTACGA GTTGCGTTAG CGAATGCGAT TTGGCATTCT GTGTAAACGT	420
TAACTTTGGC AACACCAAGT TTGATAGCTG CTTGGATTMG CTCATCAGGA ATACCTGATC	480
CACCGTGCAA TACGATTGGG AATCCTGGAA GAGCTTCTGT CAATTTTTGC AAGTGGTCAA	540
GGTCAAGACC TTCCCAGTTT ACTGGGTAAG GACCGTGGAT GTTACCGATA CCAGCTGCCA	600
AGAAGTCGAT ACCAGTTTCA ACCATTGCTT TAGCGTCTTC GATTGGAGCC AATTCACCTT	660
TACCGATGAT TCCATCTTCT TCACCACCGA TAGTACCAAC TTCAGCTTCT ACTGAGATAC	720
CTTTAGCGTG TGCTTTTTCA ACAACTTCTT TAGCCAATTT AAGGTTTTCT TCAACTGGAA	780
GGTGTGAACC GTCAAACATG ATTGAAGTAT AACCAACTTC GATACACTCA AGTGCATCTT	840
CGTAGTGACC GTGGTCAAGG TGGATAGCTA CTGGTACAGT GATACCCATT GATTCAACAA	900
GGTTAGCGAT CAAGTTGCGA GCAACTTTGT AACCACCCAT GTATTTAGCA GCACCCATTG	960
AAGTTTGGAT CAAAACTGGA GCTTTTTTAG CTTCTGCTGC GCGCAAGATA GCTTGAGTCC	1020
ACTCAAGGTT GTTTGTGTTA AATCCACCAA CTGCATAACC GTTGTCACGG GCTGCTTGGA	1080
CAATTTTTTC TGCTGAAACG ATTGCCATTT TATCAGGCCT CCTGTATATT TTTATGGGTC	1140
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GACTTTTGGA AAATCTATAA AGAAGGTAA ACTATTCTCC TCCATCTCGA AACGATAAGC	1320
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CTTGCGACTG GCATTGTCAG AAAAAGACTG GGCTAGTTTT TCTTGTTCTT CTGAGCTACA	1440
GCTATTTTCG ATAAAAAGTT CTCCTTCTCT TTCTCCAATT CGAACTAAGC CACCTGGAAC	1500
AGAGTGCTTA ATGGCATTGC TGATGAGATT AGAAAGAATC AACTTCATAA CTGATGGGTT	1560
TAGATAAGCC TGCTGATGGG TCAAACTATT GTCTATCTGG AGCTCTCTTT CCTTGGCTAG	1620
CAAGGCATAA TCTTTGACCA GATTTTGCCT CATCTGGAGG AGGTCAATTG TTTCCCTATC	1680
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ATCCACAATC CCCAAGGCAA CTCCCAGATA CTGGTCTCTA TCCTTATAAC GACCGATATT	1800
CTCTCTCATA TTTTCGATTA GGATTTTCAA ACTAGCCAGC GGTGTTTTCA ATTCATGAGA	1860
AGCTCCTCGT AGGAATTCGA CCTTCATCTT CTCCAGCTGG AGAATGGCTT CATTCCTTTC	1920

ATGCAAGTCC GCAATAACAG TCAAGAGATG CTGGTAGAGG CTATTGATTT GTTCCTTGAG	1980
ATTACCTATC TCATCCTTAG AATCCACGCG CAATCGCACT TGGGAATCCA GGTCCATCAT	2040
CCGACGGGTC ACCCGCTTGA TTTCCAAAAT CGGTGCAACA ATAGTCCGAG CGTAGATGTA	2100
GGCCACCAAA AGGGAAATCA GAAAGGAGGC CAGCAAGGTA TAGGGAAGAA ACTGGAGACT	2160
GATTTGCTCC GCTTCCTTTT GTAAATCCAT GGAAGCTAGA AACTGGAGAA TCATAGTACC	2220
ACCGTCTTGC GTTTTCACCT CGCGCTCCTC AATAAGAGA GAGGTTGTCT GGCGGTCTGT	2280
GTCCAGAGGA AGACTGTCCT TGACTTCTAA CTTGTCTCG GTCATCTCAC CTTTGACGGT	2340
CCCCTTGATA TCACTAGTCT GGGAAATACAA GTCTAACTCT TGCTCGATAC TCTGCCTATC	2400
TTTCCCTTCT AGGGACTGGG CAATGGCTGT TGCCTTTTGA CCAATGGTTT CCTGACGATG	2460
ACTCAGATAA GTCGAAGGAA AAAGAAAATA AATAGCTAAA TGAAGGCAGA TAACCAGAAC	2520
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CTGACCCCT CACGGATCAT CTCTTCATCT TCTACAATTA AAATTTTCAT ACTTTAACTG	3240
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ATAAATTCCA TAACTTTAGT ATATTATATT TAAGCACTAA AGTACAAAGA AAGCAACTGA	3420
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TCTGAATGGA AATGTCTAGG CTCGACAAGG TCTTGCTAAA GCCATCTACT TCTGCACCAC	3720
CACCAAGGTT AGAGGCTTGA GCCGCCTTAC TAGCCTGTTT GGCAACACCT GAAGTCACAT	3780
TGGCAAGGAC AGTGTTCCTA ATTGCACGGG CAGTGTAAAT AGCTAGGAAG TAAGCAGAAA	3840
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TGAGCAAGAG GGCAAGGAGG AGAACTGAGA AGCTCAAGCT ACCCCAGAAG AGGAGGTTGG	4020
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CGAGTGTGTA GCTCTTCAG TTGATACCAC TGATGCCATT CAACTCTTTC ATAACATCAT	4140
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GACCACCTGA TAACTGGAGA ACATTCCGCT TGATCTGGCT TTCATCCAAA CCAAGCTCAA	5280
GAAGTGATT CTTGCTTGCC TTTTGTGTA CCAATCGGAT ATTTTCCAGC GGAGAAAGAT	5340
AATCTATCAA GTTATAATTT TGAAAGACCA GGGAAATATG GTGCATGCCA TGGTAAGAAT	5400
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CTCCCA ATAATACTGT AAAATTTTCC GGGTTCAAAA TTATAATTGA	5580
TCTGATATAG GACTGCTTCA GCAGTATTCT TATAACGGTA	5640
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ATTGTAGGAA GATCGAGCTC TTGCCTTTTC CAAGTGCAAG	6000
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GACAAAACCA GAATTAAGGC TCCAGCTCCT GCTATCAACA	6060
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TCGACTTGGT AGCCTTGATT TTCCAAGGCC AAGTTTCTA	6180
CCTGCTTCAT GAGTCCGTCC ATTTCTTAG GATTTTCTAC	6240
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CACGAAACCA GTCCACGTTT TTCAAGGACT GGT	
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CTATAGTAGA TTGAACTAG AATAGTACAC CTCTACTTCT	

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CACTCGTAGG CGAGTACGCA AGCGCTCATC TATGCTAGTG ACTATACTTT TCATATTTAT	7440
AATTCATTCC TTTCTTTTCA CTCAAGGCAC AACACAGAAT GAAAAAGTGT TGTGATCTTT	7500
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CCGCTTCAAT CGTATCACTT AAAATATCTC TTACAGAAGT GTATTTGTCT TGTGAAGCA	8820
CGAAAACATA ATCCTGAGCT CCGACCTGTA GCACTGTCTG ACAAATCGGA AAAAGAGTCC	8880
GCATCATATC TAGCCAAGAA GCCAGATTTT CCTGCTGAAA ATAAGAAAGA TGGCAATAAA	8940
CCAACTGAAT CTTTTTAAAA ACTTGCGGTG CCTGTCCCTT GCCCTCAACC AGATAGGAAT	9000



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TGAGATAGCC CTCTTTCTCT ACTGGTTGGT CTGAAATCCG AGCCTCAGGA AACCAGTCTT	9180
GTAGTTCTTT TGCCCTCATG TTCTAGCCCT CCACTTTTTG GATGCACCAT GAAACCAAAC	9240
TCTCAAGACG TTCCAGATTG TCAGTCATAT GGAGATAGCC CATAACCGCT TCAAATCCCG	9300
<hr/>	
TGGACATACG ATAAGTCACG ACATCTGCAT TTTAGCCTT TGTGTGGCTA TTGGTATTGC	9360
GGCCACGTTT GTAGATTCTT TCTTCTTTTT CCGTTAGGAC CTGCTCCTCC AACATGAGAG	9420
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GCATCGTGTA CCGTAATGAA GTTACCCAAG GACTTAGACA TTTTGACATT GTCGATATTG	10140
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CACACTTGAA GCAAGAAACA TCCACCTCAA CAGATGGCTC TGTGAATGGG AAGTAAGATG	24180
GACGCAAACG AATTTGACGC TCTTCAACAA ACATTTTTTG GACAATCAAC TGAAGCGTTC	24240
CTTGAAGATC AGCCATAGAG ATATTTTCC CAACTACAA GCCTTCGATT TGGTGAAT	24300
GGTGACTGTG GGTCGCATCG TCCGTATCGC GACGGAAGAC ACGCCCTGGC GAGATCATCT	24360
TCAAAGGACC TTTAGAAAA TCATGGGCAT CCATAGCACG CGCCTGAACT GGAGACGTGT	24420
GGGTACGGAG CAAGATTTCT TCAGTGATAT AGAAAGTATC CTGCATATCA CGAGCTGGGT	24480
GGTCTTTTG AAGGTTTATA CGTTCAAAGT TATAGTAGTC TTGCTCCACT TCAAACCAT	24540
CCACGACTTG ATAACCCATA CCGATGAAGA TATCTTCGAT TTCTTCACTG GTTTGTGTCA	24600
AAACGTGACG GTGACCAGTC GCAACTGGAC GACCTGGAAG CGTCACATCT ATACTCTCGC	24660
TAGCCAGTTG AGCCGCGACT TTCTTTTCTT CCAAGAGCTT AGCTGTTTCT TCAAAGCAG	24720
CAGTCAAGAC ATCAGGAGCT TCATTGACGT GTTTCCCGAT GATTGGACGC ATCTCAGCAG	24780
AAACATCTTT CATCCCTTTG AGGATTTTCAG TGAGCGAACC CTTTTTACCA AGGACAGAGA	24840
CACGCAAATC TTGCATCTCT TTTTCATTTT CAGCAGTAAT CTGCTTCAAG CTAGCCAGCG	24900

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TTTCTTCGCG AAGCGCTTTT AATTGTTCTT CAATAGTTGA CATATTCCT CCATCAGTCT	24960
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CCATCCGTTT TCATCTGACA AGTCAGACCT TCATTCTAA ATCCATGCGC AAGTGAATTC	25080
ACCCAGCTTT CATATAGAGA GCTTGCACTC ACGGCTCTCC TCCCTGATAT ACTTCCCTTG	25140
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CTTGCAAGAC CTATCTTACT TCTGCTTGTT AGCTTATTCT TATCTAAAT TATATAAACc	25260
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TAAATAAAG AAGTTTAGAA TTTAATGTCT TCCAAACTTC TTTATTCCAT ATTTAATGAA	25380
ATGCCACCTT AACCGTGATA ATAGCTAGTC ATCAATAAAA AACTATTTGA ATAAGGATTC	25440
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ACTCCATGCA ATAGAAGTAC GAAAAACATT AAAGCCCAT TCAGAAAACA AGGATATATC	26640
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TTCTGTTGCT TCTCCTAATC CACCTTTGGG TAACACATCC TGAAGTGATA AGCCCTTACC	26760
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ATCTGGAAAA ATGGTCATAA CTTTCTCTCA TTATAATATT ACCAGTAATT CCTTAGAATG	26880
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TTTATCCTGG ACATCGCTTA ACGGAATGAT TTCTCTGAT ATAGGAGAAA ATATCATTTT	27300
TTTATTTGAA ACTCCAGCTT CAAGTTCTAA ATTGCTAGAA CTCTCTTCTT CATCGATTCC	27360
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CAAGACTTTC AACATACCTC CCCCTAACAT TGCTGGAATG ATTGGAGTCA TGAACACGAC	28380
GATATACTCA ATGATTCTTT CTAAAATATT CCCTTTGTGC CCTTGAACAA CTGAATCGGA	28440

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ATCATCATTG ACTAAATTTT CATCTTTTAA TTCTAATCTT AAACGTGTTA CACAATGGGT	28620
AACTCTATTG ACATTTTTTT CACCTCCAAT TACATCGAGG ATTTTTTGTA CCGTATCTTT	28680
ATAACTCATG GTATTCTCCT ATTCTATTAA TCTAAATTTT TTGTTAAGCG ACGAATATGA	28740
GCCATCAAAT AAACATAATC ACTAGAAGTC AGCAAATAAT TGTACTCCGT TTGTATAAAC	28800
ATTGCTACCT GTTCACCACA TTCATATTCT CTAGGATATT TATTTTTTCAT TAATGCTAAC	28860
AAGTCTTCAT CATCATCGTC GG	28882

(2) INFORMATION FOR SEQ ID NO: 141:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 12835 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 141:

GCCTATGTCT TTTTCAAAAA AATGCTTGAC TTGAGACGGG AACTAGGGAA GTCTAAAGGC	60
GGAAGGCATT GATTTATACT CTTGAAAAT CTCTTCAAAC CACGTCAACG TCGCCTTGGA	120
TTATATATGT AACTGACTTC GTCGATGCTT ATCTACAACC TCAAAGCAGT GCTTTGAGCA	180
ACTTGCGGCT AGTTTCCTAG TTTGCTCTTT GATTTTCATT GAGTATTATA TTACTTTCTA	240
TTGTAGGAG GTGGCTTATG AAGATTCCTC TCTTAACTTT TGCAAGGCAT AAATTTGTTT	300
ATGTCTTGCT TACTTTGCTT TTTCTTGCTT TGGTTTATCG TGATGTTTTG ATGACTTATT	360
TCTTTTTTGA TATTCATGCG CCCGATCTAG CTAAATTCGA TGGACAAGCA ATTAATAATG	420
ACTTATTAAA ATCAGCATTA GATTTTCGTA TTCTCCAGTT CAATCTAGGT TTTTATCAAT	480
CATTTATTAT TCCAATCATC ATTGTTTTGC TAGGTTTTCA ATATATTGAG CTGAAAAATA	540
AAGTTTTACG ATTGAGTATT GGAAGAGAAG TGAGTTATCA AGGGTTAAAA AGAAAGTTGA	600
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TTATAACCTA TTTCTTTGGG ACTTTTTCTC CTCTTGGATG GAATTCTCTA TTTTCTGATG	720
GAAGTGGTTT ACAAAGACTC CTAGATGGAG AGATAAAAAG CTATTTGTTC TTTACTTGTG	780
TCCTACTAAT CGGTATTTTC ATCAATGCAA TCTATTTTTT ACAAATAGTT GATTATGTGG	840
GGAATGTGAC TCGTTCGGCA ATCACCTATT TGATGTTTCT TTGGCTTGGT TCTATGCTGC	900
TTTATAGTGC CTGTCCTTAC TATATGGTTC CTATGACGAG TTTGATGCAA GCTAGCTATG	960

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GCGGTTCAAA AGCAGGATGC TGTATCTTT TTCAAGAGAG AATTGATTTC AATTTTTTCC	1200
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GCCTTGATTC AAGCCTTTAT TTCTCTCCT TCTATACTCT TTCTCGATGA ACCTATGAAT	2160
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CTTCTCTTTC CGTTATGAAG ACTTCAAAAC CAAGCAGGTG CTGGAGCTGG AAGACGGTGA	9120
GAAGGCAGTT CTTTCTGGTC AGGTAGTGAC TCCTGCTAGT GTCCAGTATT ATGGTTTCAA	9180
GCGCAATCGC CTGCGTTTTA GTCTCAAGCA GGGAGAGGTC GTTTTTGCGG TGAATTTCTT	9240
TAACCAGCCC TATCTGGCTG ATAAATAGA GTTGGGAGCA ACCCTTGCTG TCTTTGGAAA	9300
ATGGGACCGC GCTAAGGCTA GTCTGACTGG GATGAAGGTT CTGGCTCAGG TAGAAGATGA	9360
CCTCCAGCCT GTCTATCGTC TGGCTCAGG AATCAGTCAG GCCAGTCTGG TCAAGGTCAT	9420
CAAGACGGCT TTTGATCAGG GACTGGACCT CTTGATAGAA GAAAATCTGC CCCAGTCTTT	9480
ACTAGACAAA TACAACTCA TGTCCCGTTG TCAGGCAGTC CGTGCTATGC ATTTTCCAAA	9540
GTATTTGGCA GAATACAAGC AGGCTCTTCG CCGTATAAAG TTTGAGGAAC TCTTTTATTT	9600
CCAAATGCAG CTGCAGATGC TCAAGTCTGA AAATAGAGTT CAGGGAAGTG GTCTGGTTCT	9660
GAATTGGTCT CAGGAAAAAG TGACAGCAGT TAAAGTAAGT CTTCTTTTGG CCTTGACCCA	9720
AGCTCAGGAA AAGAGTTTGC AGGAAATTTT AACTGATATG AAGTCCGACC ACCACATGAA	9780

962

TCGTCTCCTA CAAGGGGATG TGGGGAGTGG AAAAACGGTA GTCGCTGGCT TGGCCATGTT	9840
TGCGGCAGTG ACAGCAGGTT ATCAGGCTGC CCTAATGGTA CCAACAGAAA TCCTCGCAGA	9900
GCAACACTTT GAGAGTTTAC AGAACCTTTT TCCCAATTG AAACTGGCTC TCTTGACAGG	9960
TTCCTTGAAA GCTGCAGAAA AGAGAGAAGT CTTGGAGACC ATTGCCAAGG GTGAGGCTGA	10020
TTTGATTATA GGAACCTCAG CTCTGATACA AGATGGGGTG GAGTATGCTC GTCTTGGTTT	10080
GATTATTATC GATGAGCAGC ACCGTTTTGG TGTAGGGCAA AGGCGTATTT TACGGGAAAA	10140
AGGTGACAAT CCAGATGTCC TCATGATGAC GCGGACTCCC ATTCCACGGA CGCTTGCCAT	10200
CACAGCCTTT GGAGATATGG ATGTTTCCAT TATCGACCAG ATGCCAGCAG GTCGGAAGCC	10260
TATTGTGACG CGCTGGATCA AACATGAGCA ACTACCTCAG GTCTTGACTT GGTTAGAGGG	10320
GGAAATTCAA AAAGGTTCCC AAGTCTATGT CATCTCTCCT TTGATTGAAG AATCAGAAGC	10380
TCTAGATTTG AAAAATGCCA TTGCCTTATC AGAGGAGTTG ACGACTCATT TTGCAGGCAA	10440
GGCAGAGGTG GCTCTTCTAC ATGGTAGGAT GAAGAGTGAC GAAAAAGACC AGATCATGCA	10500
GGATTTCAAG GAGAGAAAGA CGGATATTCT GGTTCGACG ACGGTTATTG AGGTTGGGGT	10560
CAACGTTCCT AATGCGACTG TCATGATTAT CATGGATGCC GATCGCTTCG GTCTCAGTCA	10620
ACTTCACCAG CTTAGAGGTC GTGTCGGTCG GGGGACAAG CAGTCCTACG CTGTTCTCGT	10680
TGCTAATCCC AAGACGGATT CTGGGAAAGA CCGCATGCGT ATCATGACAG AAACGACCAA	10740
TGGATTGTGC CTTGCGGAGG AAGATTTGAA AATGCGTGGT TCTGGTGAGA TTTTGGAAAC	10800
CAGACAGTCA GGACTTCCAG AGTTCCAAGT GGCTGATATT ATCGAAGATT TTCCGATTTT	10860
AGAAGAAGCA AGAAAGGTTG CTAGCTACAT TAGTTCTATA GAAGCTTGGC AAGAAGATCC	10920
AGAGTGGCGC ATGATTGCCC TTCATCTGGA AAAGAAAGAA CATCTGGATT AAGCTTTCTC	10980
TAAGGAAAAC TTATACTCAA TGAAAATCAA AGAGCAAACCT AGGAAGCTAA CCGCAGGTTG	11040
CTCAAAACAC TGTTTTGAGG TTGTGGATGA AACTGACGAA GTCAGCTCAA AACACCGTTT	11100
TGAGGTGGCA GATAGAACTG ACGAAGTCAG TAACATATAT ATACGGTAAG GCGACGCTGA	11160
CGTGGTTTGA AGAGATTTTC GAAGAGTATT AAGCTAGTTT TTAGGTTTGG CTCTTATACT	11220
AGAGTCATCA AAAAGAAACG AGGACTCTCA TATGACAGTA ACGATTAAAG TAAATTACCA	11280
AACCACTTTC CAAAAGAAGG AAGCAAAAAA CTAGTATAAA CAGAAGAGAG AGCGAAATGC	11340
TCTTTTTCG TTTCTAAAAC TACTTTCAGC CCATCATCCT AAAAGTAAAG AATCTAAATT	11400
CACTTCTAT TTACCCTTCT TTCTTGCAAT GATTACATAG ATATGCTACA GTTGTGGTAA	11460
CGATTACAAA ATAAAAGGAG CATGCTATGA AAAATCCAGC TTGCTAGAA GAAATTAAGA	11520
CCTATAGAGG AAGGGATGAG GTTCCGGAAG ACTTTGATGA TTTCTGGGAT GGGGAAGTGA	11580

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AAAATGTTTC CACGCTTCCA TCCTACCACT TGGAGGAAAG AGATTTCAC ATTCTCAAG	11640
TCAAGTGCTA TGAGTTAACA TTTGAAGGAA GCAAGGAAGG AAAGGTCTAT GCACGCATTG	11700
TTCTTCCAAA GAGTGAGGAG AAGGTCCCAT TAATCTTCCA TTTTCATGGT TATATGGGAC	11760
GTGGCTGGGA CTGGGCCGAC ATGCTGGGCT TCACCGTAGC TGGTTACGGT GTTGTMTCCA	11820
TGGATGTGCG GGGCCAGTCA GGTTACTCAC AAGACGGCTT GCGTTCTCCT TTAGGAAATA	11880
CCGTGAAGGG GCATATTATC CGTGGTGCTG TGAAGGTCG GGACCACCTC TTTTATAAGG	11940
ATGTTTATCT GGATATTAC CAGTTGGTCG AAATTGTTGC TAGTCTGTCT CAGGTGATG	12000
AGAAGCGTCT TTCTAGCTAT GGTGCCTCAC AAGGAGGGGC TCTAGCTCTA GTTGCAGCAG	12060
CGCTCAATCC TCGAATTCAG AAAACAGTTG CCATTATCC CTTCTGTCA GACTTCAGAC	12120
GGGTGATTGA GATTGTAAT ACTAGCGAGG CTTACGACGA ACTTTCCGT TATTTCAAGT	12180
TTCACGACCC CTTCCATGAA ACAGAGGAGG AAATCATGGC GACCCTTGCC TATATCGATG	12240
TCAAAAATCT TGCCCATCGT ATCCAAGGTG AGGTTAAGAT GATTACGGGC TTGGACGACG	12300
ATGTTTGCTA TCCCATTACC CAGTTTGCGA TTTATAATCG TCTGACCTGC GATAAAACCT	12360
ATCGCATCAT GCCTGAGTAT GCTCACGAAG CCATGAATGT ATTTGTCAAT GACCAAGTCT	12420
ACAACTGGCT CTGTGGAAGT GAGATTCCTT TTAAATATCT AAAATAAGGA GTCGACTCTA	12480
AGCACAAAAT CTTAAAAATT ACAAACACGC ATAGTATCAG GGGATTAAGA AAACCTTTATA	12540
CTATGCGTTT TATCATGGAA ATATAGTAAA ATGAAATAAG AACAGGACAA ATCGATCAGG	12600
ACAGTCAAAT CGATTCTAA CAATGTTTTA GAAACAAATG TGTACTATTC TAGTGTCAAT	12660
CTATTATATT TATAGAATTT TTTGTTGCTA GATTGTGCAA ATTGCTTAAA ATAATTTTTT	12720
TCAGAAAGCA AAAGCCGATA CCTATCGAGT AGGGTAGTTC TTGCTATCGT CAGGCTTGTC	12780
TGTAGGTGTT AATACTTTTC AAAAATCTCT TCAAACCACG TCAGCTTCGC CTTGC	12835

## (2) INFORMATION FOR SEQ ID NO: 142:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5020 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 142:

GGGGATATGA AGAACAAAAG AATATTTAAA GACTTCCAAG CTTCAAAAAT GAGTTTAAAC	60
ATTTACACAA GCCCCTTGTT AGCCTTTGTT TTTGTCTTCA TAGGAGAGTT TGTGGCTTTT	120

964

ACTTTGTATG GTATTGGCTT GTTAGCTCTC ATCGGACTTG CTAGAAATTT TGGAGAGGCT	180
GGTCAAAATC TTGCAAGCTA CTTGCAGACC TTGCATCAGA GCTTGACGGA TAAACAAGT	240
GACTTTCGTT TAATTTTAGG ATTACTGGCC TTTGGTTATT CTTAACACTG TGTTCAAGTG	300
GACAAGAAAA GTTGAGAAAA GACCTATTCG AACCTTGGGA TTTTATAGAG AGAATTCCT	360
CAGCAATCTT CTGAAAGGAT TTAGTCTAGG CCTGGCACTT TTTCTTCTGA CCTTGTTAGG	420
TTTAGTGGTC TTAGGTCAAT ATCGTTTGGA ATCCATTAC TTGAATCCTT ATTCTCTTG	480
CTTTGTGCTC TTTACTATCC CATTTTGGAT TTTACAGGGG ACAGCAGAAG AAGTGGTGGC	540
CCGTGCTTGG CTACTTCCTC AATTGGCCTC AAGAACCAAT CTAAGACTAG CTATTCTTAT	600
ATCTAGCCTG TTTCTTACCC TGCTTCATAT GGGCAATTCT GGTCTCAGCC CTCTATCTCT	660
AGTAAATCTC TTTTATTTCG GAGTTGCCAT GGCTCTTTAC CTTCTCAAAA CTGATACAGT	720
TTGGGGTGTT GCAGGTATTG ATGGTGCTTG GAATTTTGCT CAGGGTAATC TCTTTGGGAT	780
TTTAGTTAGT GGTCAACCGT CAGAACGTCT CTGATGACCT TTTTACCACA AGGCAATCAA	840
GATTGGCTAT CAGGTGGTTC TTTTGGCATA GAAGGTTCCA TTATGACAAG TCTGGTATTA	900
CTACTGCTGA TTGTCTATCT TGCTAATAAA TTAAAGAAAG AAAATGAAAG GATGTGACTT	960
CGGTCCGTCC TTTTCTTCGT GAAATACTA TAAGTATGCT AAAATAGGAA TAGCACATGG	1020
AGAGAGGATT CTTATGATCA ATCATTAC AGATAATCAA TTTAACTAG TATCAAAATA	1080
TCAACCATCA GGAGATCAAC CCCAAGCTAT CGAGCAGTTG GTGGATAACA TTGAGGGGGG	1140
AGAAAAAGCT CAGATTCTGA TGGGGGCGAC TGGACAGGG AAGACCTATA CTATGAGTCA	1200
GGTCATTTCT AAAGTCAATA AACCAACTCT GGTATTGCCC CACAATAAAA CTCTGGCTGG	1260
TCAGCTCTAT GGGGAGTTTA AGGAATTTTT CCCTGAAAAT GCAGTTGAGT ATTTCTGATC	1320
CTACTATGAT TATTACCAGC CAGAGGCCTA TGTCCCTTCT AGCGATACCT ATATTGAGAA	1380
GGATAGTTCT GTCAATGACG AGATTGACAA GCTTCGCCAC TCAGCTACCT CAGCCCTTTT	1440
GGAGCGTAAT GATGTTATTG TCGTGGCCTC AGTCTCTGT ATCTATGGTT TGGGTTCCGC	1500
CAAGGAATAC GCTGATAGTG TCGTTAGTCT CCGTCCTGGT CTAGAGATTT CTCGTGATAA	1560
ACTCTGAAT GACTTGGTCG ATATTCAGTT TGAACGTAAT GATATTGATT TCCAACGCGG	1620
AAGATTTTCG GTTCGTGGGG ATGTGGTAGA GATTTTCCCA GCTTCCCGAG ATGAACATGC	1680
CTTTCGAGTA GAATTTTTTG GAGACGAAAT TGACCGTATT CGTGAAGTTG AGGCTCTGAC	1740
AGGTGAGGTG TTGGGAGAAG TGGATCATTT AGCGATTTTC CCAGCGACAC ACTTTGTGAC	1800
CAATGACGAC CACATGGAAG TTGCCATTGC AAAGATTCAG GCCGAGTTGG AAGAACAATT	1860
AGCTGTCTTT GAAAAGGAAG GTAACTGCT TGAAGCCCAG CGTTTGAAAC AGCGGACAGA	1920

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GTATGATATC GAAATGTTGC GTGAGATGGG CTATACCAAT GGGGTTGAAA ATTATTCTCG	1980
CCACATGGAT GGACGGAGCG AAGGAGAGCC TCCTTATACG CTTCTCGACT TCTTCCCAGA	2040
TGATTTCTTG ATTATGATTG ACGAGAGTCA TATGACCATA GGGCAAATCA AGGGCATGTA	2100
CAATGGAGAC CGTTCGCGTA AAGAAATGCT GGTAAATTAT GGTTCCTGTT TGCCGTCTGC	2160
TTTGGACAAT CGTCCTCTCC GTCGGGAGGA GTTTGAGAGT CACGTTTCATC AGATTGTTTA	2220
CGTTTCAGCG ACACCTGGTG ACTATGAAAA TGAACAGACC GAGACAGTGA TTGAGCAAAT	2280
CATTCGTCCA ACGGGACTCT TGGATCCAGA GGTGGAAGTC CGTCCGACTA TGGGACAGAT	2340
TGATGACCTC TTGGGTGAAA TCAATGCCCC CGTTGAAAAA AATGAGCGTA CCTTTATCAC	2400
AACTTTGACC AAGAAAATGG CAGAGGATTT GACCGACTAC TTCAAGGAAA TGGGTATCAA	2460
GGTCAAGTAC ATGCACTCGG ATATCAAGAC CTTGGAACGG ACGGAGATTA TCCGTGACCT	2520
GCGCTTGGGT GTCTTTGATG TCTTGGTCGG AATTAACCTG CTCCGTGAAG GAATTGACGT	2580
TCCTGAAGTG AGCCTCGTAG CTATTCTCGA TGCTGACAAG GAAGGTTTCC TTCGCAACGA	2640
ACGTGGACTC ATCCAGACCA TTGGACGTGC TGCACGTAAT AGCGAAGGTC ATGTTATCAT	2700
GTATGCGGAC ACGGTTACCC AGTCTATGCA ACGTGCTATC GATGAACTG CCCGCCGTCG	2760
CAAAATCCAG ATGGCCTATA ATGAAGAACA TGGTATCGTT CCACAAACCA TCAAGAAAGA	2820
AATCCGTGAC TTGATTGCTG TGACCAAGGC AGTTGCTAAG GAAGAAGACA AGGAAGTCGA	2880
TATCAATAGC CTCAACAAAC AAGAGCGCAA AGAACTAGTC AAAAAGCTTG AGAAACAAAT	2940
GCAAGAAGCA GTTGAAGTGC TTGACTTTGA ACTAGCAGCT CAGATTCTGT ATATGATGCT	3000
GGAAGTCAAG GCCTTGGATT AGGGGAATAG TATGATTTAT TTAAGAAAGT TAAAGAAAGA	3060
AGATTTGATG TCTTTATGGG AAATGGCTTA TTCACAGCTT AATCCAGTTT GGAAACAGTA	3120
TGATGCTCCC TATTATGATG ATTATCAGTA TTTTCAAAT TTTAAAGAAT TCGAACTACA	3180
AAAATCAGAA TCCATTTTAA GCAACTCAA TCGCCTTGGT ATTTTGTGTG ATGATAAACT	3240
AGTTGGGACT GTTTCGCGTT ATTGGGTATG TAAAGAAACA AGATGGATGG AATTGGGAAT	3300
TGGTATTTAT GATAAAAAAT TCTGGAACAC TGGTATTGGG AAAGTTGCTA TGTTGCAGTG	3360
GATAGATAGG ACGTTTCAGG ATTACTTGA GTTGGAGCAT CTGGGTTTGA CAACTTGGTC	3420
AGGAAATATT GGTATGATGA AACTTGCTGA AAAATTAAGA ATGAAAAAAG AAGCTCATAT	3480
TCCAAAAGTT CGTTATTATC AAGGTAAATA TTTTGACAGT ATTAAATATG GTATTTTGAG	3540
AGAAGACTGG GAGAAAAATA ATGACGGTTA TTATCAAATC AATGGAACT CCTGAAGAGA	3600
TAGAAGGTAA ATCCTTCGTT CACTGGCAA CGTGGAGAGA GGCTTATGAT GACCTTTTGC	3660

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CTGCGGAATT TCAGGAGACA ATGACATTAG AAAGATGTCG ACTCTTTAGT CAAAAGTATC	3720
CAGAAAATAC ATTGATTGCG ATGGATGGTG TGAAGATAGT TGGTTTTATA AGTTATGGCA	3780
ACTGTCGTGA TGAGACTATT CAAGCTGGTG AAATTATTGC TTTATATGTT TTAAGAACT	3840
ATTATGGAAA AGGAATCGCA CAAAAGTTAG TGAAAGCAGC TTTGACTGAT CTTAATCATT	3900
TTTCTGAAAT TTTCTTATGG GTATTGAAAG ATAACAAGCG CGCCATTGCT TTCTATCAAA	3960
AAATGGGTTT TACTTTTGAT GGACAAGAAA AAATACTTGA ACTTGGAAG CCTATAAAGG	4020
AAAAACGGAT GGTATTCTAT TCTAAATAAT TCTCAAAAGT AAAAGCTAAT ATGGTACCAA	4080
GTCTGAAAAT TTAATAAATT AGAAAGCGAG TAAATTTATG TCCCGTTCCC AATTAACAAT	4140
TTTAACAAAT ATCTGTCTGA TTGAAGACCT CGAACTCAG CGCGTGGTGA TGCAGTATCG	4200
CGCCCTTGAA AACAATCGCT GGTCTGGTTA TGCCTTTCCT GGAGGTCATG TAGAAAATGA	4260
TGAGGCTTTT GCGGAGTCTG TCATTCGTGA AATCTACGAA GAAACAGGGT TGACTATCCA	4320
AAATCCTCAA CTTGTCGGCA TTAATAATTG GCCACTAGAT ACAGGTGGGC GCTATATTGT	4380
CATTTGTTAT AAGGCGACTG AGTTCTCTGG TACCCTTCAA TCTTCAGAAG AGGGAGAAGT	4440
TTCTTGGGTG CAAAAGACC AGATTCCAAA CTTAAATCTG GCCTATGATA TGCTACCATT	4500
GATGGAAATG ATGGAAGCTC CCGACAAGTC AGAGTTTTTC TACCCTCGCC GTACAGAAGA	4560
CGATTGGGAA AAGAAAATCT TCTAGTCTTT TACTAAATAA CCTAGCTGAT CCAAGGCCTC	4620
CTCGATATAG TGGAGGTCTT GTTGTGTCTC GGCTTCAACT AGGTGATAAT GAATACCATC	4680
TGTTAACTCA GAAATTGGCT TAAAGTCAGA ACGTTCAACT TGTCTAGAA AATGTTGCAC	4740
GTCGCGCGCA CAGGTCAGTT TTAGTAAGGT TTCAATCTCT CCATAAACAG GATGATCAAT	4800
CAAGATATTT TGAACGCGAC CACCATTATC TACGATAGCA AGTAATTCTC GTCCAATTTT	4860
TTCAACTTCA TGCTTGACCT TAAATAATTT GTGATGATAA GTATTTGCAT TAGCATCTTT	4920
ATAGATATAA CCACGATTGG TAGATAGAAT TGGAGATCCA TCAGCTCTTA AAATGCAAT	4980
ATCTTGAACA ATAACCTGTC GAGTGACATG AAAGTGCTCA	5020

(2) INFORMATION FOR SEQ ID NO: 143:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 4965 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 143:

AAAAAGTGGC AATCCATTGA TTGGCCACTT CATTTAGAGA ATTATCGTCT CGCCCTTGAA	60
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GAAGAAGGTC GTGTAGTACT TGAGTTACTG CTATCGCTAG AACTACTACT TGAAGTGGTG	120
GAGCTGGATG GAGTTGGTAG ACTCCCCACA ATACTAGACC AAGCATTCTG ATAATCCGCA	180
TCACTTCCGC CAATAGCAAA GCGATAACTT GTCGCTGGCG CTCCTGACTT ATTAGCCCAA	240
TAGCTGGTAA CAGTCGAACC TGTGACCTCT ACTTCTTTTC CTTCAACAGA AACCTTCTCT	300
GGTTTTTGAC CTGTTGATTT CAAGACTTCC GATTTCACTA CACTAGGATC TAAAGCAAAG	360
CGCTCGTTCC CCCAAATGCT TGGGGAAGCT TGCTGAATCG CATTACCAG ATGAGCCATG	420
TAATTAGAGT TATTAGAATA ACCTGCTCTA CGTGACAATG AATGATTATC ATCATGCCCA	480
ATCCAGCCAC CTAGGGTTAA TCTAGGTGTC GAAAGCATGA GCCACATATT TTCGTCTTGG	540
TTGGTTGTAC CAGTCTTCCC AATCCAATCT GCATTAGCCA GAGTAGGATT TAAAGAAGTC	600
AGGTTAGACT TGAAGGTTGT TGTCACACGA GAGGATAGAA CTTCTCGTAG CAATCCCTGC	660
ATAATCGTCG CAGTAGCTTT TGAATAGACT TGAACCGGTT TATCCTGATA CTCATACACC	720
ACTCTACCAT CTGCTGCTTC AATCTTTGAA ATCACATGCT TCTGATGATA AACTCCATTA	780
TTAGCTAAGG TCTGATAGCC ATTGGTATGC TGGGCAACTG TGACTTCAAT ACCACCACCC	840
ATTGGCAAGC TCTCAATACC GTACTCAGGA ATCTCGTAAC CCATCTTTTC CATATAACCC	900
TTGACATCAA CACCTTTTTC ACGGAGCATA CGATAGGTCC AGTAAGCAGG GATATTCCAT	960
GAATAGTTCA GAGCTTCTCC CAAGGTCATC ATTCCTGTTT CCTTGCTATT AGCATAkata	1020
ATCGGATTGC CATTAGCAAA GTTTGTTGGA TAGTTAGATA GAATCGTTTC ACTTCCCATC	1080
AAGCCCTGGT CAATAGCAAT ACCGTAGGCC AGCAAGGGCT TGGTAGTAGA AGCTGGCGAA	1140
CGTTTGGTAT CAAAGGCATG ATTATTTTGA TTTTCTTGAT AATTACGACC ACCTACAAAG	1200
CCTAGAATAG CACCTGTTTG GTTATCCATC AAGACATTCC CTACTTCTAC ACGACCTGTT	1260
CCATCGTCTA AAAGATAGCC ATAATCAGCA ACCGCACTTT GCATGGCAGA ATGAATTTTC	1320
TGATCTATGG TAGTAGTAAT CTTATAACCA CCATTTTCAA TTTCTTGGC TGCCAAATCT	1380
CGATAAACT TCTGAGTTGC CTCATTTTTC AACTCCTTAG CGGAGACATT GTCTCTCTGA	1440
GCTAGATAGT CATACTACG TTCTTGAGCT TCTGCCAAAG TTGTAAAGTA TAAATAGTCT	1500
CGTGAAATTC CTGTAACCGT GCCCGATGGT AAAAAGTCCT GTTTAAGGTC ATAATCCTTG	1560
TACTGAGAAT ACTCGTCTTT GCTTAATGCA CCGTACGAT ACATACTGTA AAGAACTGCC	1620
TTAGCCCGTC TTAAGCCAAT TTCTAGGTCT TCATCACTCT TCAACTCCCC AGTATTTTCA	1680
TAAGGAGAGT AAGTAATGGG ACTCTGTGGA AGTCCTGCTA AAAATGCTGC TTGAGGAACA	1740
GTCAACTGAC TGGCATCTAC ACCGAAAATT CCCTCAGCTG CTTGCCGAGC CCCTGCAATA	1800

		968	
TTCTGTCCCT	TATTATTTCG	GCCAAAGGGA	GCCACATTGA GATAGGTCGT TAAAATCTCA 1860
TCTTTATPCA	TGGCGCGTTC	CAAGGCAAGA	GCATCCACAA TCTCTGCCGC CTTACGAGCC 1920
AAGGTCGGCG	CATCCCCAAC	CACCTGCTGT	TTAATTAGTT GCTGGGTCAA GGTGAACCC 1980
CCACTAGAGG	AACCCAAACC	TACAAATTTT	CCCAGGTCG CACGAATCAC CGCCTTGGGT 2040
ACTACACCCT	TATGTTCTTT	AAAGTGTTC	TCTTCTGTCG CAATGATAGC CTTCTTCAGA 2100
TTTCCGAAA	TTTGCTCAGA	TGAGATAGAA	GTGCGCAACA AATCACTCTC TATGGAAGCA 2160
ATCACCGTCC	CGTCCGAATA	GGTAATCTCT	GAAATAGAAG AGATGTCCTT GACCTGATTC 2220
ACCAATTCTT	CTGTCTGAGG	CACCCGAACC	TTGTCAAATA AGGCCACTCC GTATCCCAA 2280
GCAATCCCAG	CTCCCAACAT	TCCTCCTAGA	AAACCGAGTA CAAAGAGTAA GTTAAATAAG 2340
GCTTTTATAC	TCAGTAAAAT	AGCTGGGAAA	ATGACTGACT TATCTAAGGT TTTAGATTTT 2400
TTGGTACTTG	AACCTTTCTT	GCCAGGTCTA	GCTGATTTTT TATTTTTTTG TTTTGTCTGG 2460
AAAAATTCCA	GCATTTTTCG	TTTAAATTCA	TTTAATTGAT TTTGCATGGA TTTCTCTACT 2520
TTATCTATTA	TACCACAAA	GGGAAATTTT	CAATAAAATA GCCACTTTCT TCCCTATTCT 2580
GCTAGGCTAT	TGCCCAAGTT	TGTGATACAA	TAGGTAGAAA CAATAATTTT AAAAAGGAGA 2640
AAAAACACAT	GCACATTTTT	GATGAGCTAA	AAGAGCGTGG TTTGATATTT CAAACGACTG 2700
ATGAAGAAGC	TTTGCGTAAA	GCCCTAGAAG	AAGGTCAAGT TTCTTATTAT ACTGGCTACG 2760
ATCCAACTGC	TGACAGCCTT	CACCTAGGCC	ACCTTGTCGC AATCTTGACA AGTCGTCGCT 2820
TGCAACTAGC	AGGTCACAAA	CCTTATGCGC	TCGTTGGCGG TGCTACAGGT CTCATCGGAG 2880
ATCCGTCCTT	CAAAGATGCT	GAACGTAGTC	TCCAAACAAA AGACACAGTA GATGGCTGGG 2940
TCAAGTCTAT	CCAAGGACAA	CTTCTCGTT	TTCTTGACTT TGAAAATGGC GAAAACAAGG 3000
CTGTCATGGT	CAACAACTAC	GACTGGTTTG	GCAGCATCAG CTTCAATTGAC TTCCTCCGTG 3060
ATATTGGAAA	ATACTTCACG	GTCAACTACA	TGATGAGTAA GGAATCTGTT AAAAAACGGA 3120
TCGAAACAGG	AATTTCTTAC	ACTGAGTTCG	CTTACCAAAT CATGCAAGGG TATGACTTCT 3180
TCGTCCTTAA	CCAAGACCAT	AATGTCACTC	TTCAAATCGG TGGTTCTGAC CAGTGGGGAA 3240
ATATGACAGC	TGGTACCGAA	TTGCTTCGTC	GTAAGGCGGA CAAGACTGGT CACGTTATCA 3300
CTGTTCCACT	AATCACAGAT	GCAACTGGTA	AGAAATTTGG TAAATCAGAA GGAAATGCCG 3360
TCTGGCTCAA	TCCCGAAAAG	ACTTCTCCAT	ACGAAATGTA CCAATTCTGG ATGAACGTGA 3420
TGGACGCTGA	CGCTGTTCCG	TTCTTGAAAA	TCTTTACTTT CTTGTCACTT GATGAGATTG 3480
AAGATATTCG	TAAACAATTT	GAAGCAGCGC	CACACGAACG CTTGGCTCAA AAAGTCTTGG 3540
CTCGTGAAGT	TGTTACACTT	GTTACCGGAG	AAGAAGCCTA CAAAGAAGCA CTTAACATCA 3600



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CTGAGCAACT CTTTGCAGGA AACATCAAAA ACCTTTCTGT CAAAGAGCTC AAACAAGGAC	3660
TTCGTGGTGT GCCCAACTAC CAAGTACAGG CAGACGAAAA CAACAATATC GTGGAAGTGC	3720
TCGTCTCATC TGGTATAGTT AACTCAAAAC GCCAAGCCCG TGAAGACGTC CAAAACGGAG	3780
CCATCTACGT AAACGGCGAC CGCATCCAAG AGCTTGACTA TGTCTTGAGT GACGCTGATA	3840
AGTTAGAGAA TGAAGTGAAT GTTATCCGTC GTGGGAAGAA AAAATACTTT GTATTGACTT	3900
ACTAAACTAT TCAACATTTA TCTATAAACA AAGGAGTTAA CCTCGAGAAA GGTAAGTCTT	3960
TTTTGCTGTT AATAACTCTC ATCTATCTAT TTTAATAGA CAGGCTACGC AGGACAATGC	4020
GCAAGGTTGT TAGATTATGT AAGATAGAGA GATTTGAAGG ACTGAACCAA TTAAATAAGC	4080
CAAAGCCAAT CAAACTACTA TTTACGACAA CGGTATCCTG AATATTTTTC TTGATGAGTG	4140
TTTGCAAAGA TGATGATAAC GAATCCAAT CTTGGAAGAA ATCCAAACGA TTATCTAACA	4200
ATAAGATATC ACTCATCTGC TTAGAAATAT CTGCACTCTC ATTCATCACC ACACCGATAT	4260
CTGATAGAGT TAAAGCCGCT GAGTCATTCA ATCCATCTCC AACCATCAAA ATAGTGTGAC	4320
CTGCTTTCTG CAGTTTCTCT ACTAACTCAA ATTTCCCATC AGGTTTCAAG TCTGTATAGA	4380
CCTGATCAAA GGGCAAATCT TTGACTAATT CCTCTGTCCT AATCAAGGTG TCTCCTGTTG	4440
CCAGAATCAA TTTTTCCTCC TGTGCCTTAA GTTTATCCAA GGCTGTTTTT GCTTCTTTTC	4500
TCAAAGGAGT ATGAATGCAG AACATTCCAA TCAATTCATT TTGATAAGCC AAGAATAAGA	4560
GATTGTAGTG ACTCTGTAC TCTTCAATTA AAGCATTTTG TTCTGAACTG ATATGAATCT	4620
GCTCATCTG CATCAAGACA TAATCCCAA TAAGAACTGG TTGGCCATCT ATATGAGATT	4680
TGATCCCTT GCTTGCAGTA TATTGGAGTT TCCCATGCAT TTCCTCATGT TCAATTCCTT	4740
CTATCTCAGC TTGCTTGACG ATGGCATTAG CAATAGGATG ATAAATGTGT TCCTCAAGAC	4800
AGGCACTGAT TCTGAGAATA TCTTCCTCAC TATAGTCTCC AAAAGGTAAC ACCTTTTCAA	4860
CTATAGGATA ACTAGTTGTG ATTGTTCTG TCTTATCAAA CAAGAAAGTA TCAACTTCCA	4920
GATATTTCTC CCTGTTGTGG CCTCTGGCTG TCATCTCTGT GCTGG	4965

(2) INFORMATION FOR SEQ ID NO: 144:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 3232 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 144:

970

CAGGGGCGTA TTACGTGACA ATTCAATGTA GGCTGTGCGCT ACTTGCGCCA AAACAAGGAT	60
TCGATAATGT CGGATGATAC TAACGATTAA ACCGAGCAGA AAGGATCCCA AAATTCCCCA	120
AACTGCAATA TGCAAGGTCA GAAAGAATGC CTTTGTGATAT AGTGGTAGAT ATTGTTC AAC	180
AATGGATCAA TCCAAAAATA GAACCTCCCA TCTAGAAATA ATACAGTTAT TGTAGCACTT	240
AAAATCTTCT TTGGATAATA TCTATTTTTT ATTGCCGTTA TAAGGATTTT TATCATAGAC	300
ATAAAATTTC TGAAATTTC AAACAAAATA TTTTAAAAGT TTTGAAAAAG AGTTAAGATA	360
TTTTTGTAAT ACACAAAGTA AACGCTTACT TATTAAGGAG GACATTTTAT GTCATACAAA	420
ACAAGCAATG CAGAAGGTCA TGTAAGTTTC ATCAATACCT ATGATTTGGA GCCAATGGCG	480
CAACAAGTTA TTCCTAAAGC AGCATTTGGC TATATCGCTA GTGGGGCGGG AGATACTTTC	540
ACTTCTTTCC AGTGATTTTA GCGTCAGGTT CTTTTAGTT TTTAAAGATT ATCCGTGAAT	600
TTCTTGCTTA TTTATGATAA AATGGGAGTG TCGCAAAAAA TGACTCATCG TATTCAATTT	660
TGAGTAAAC TAGGAGGATC CCATGTCTAC AGAACATATG GAAGAACTAA ATGACCAGCA	720
GATCGTTCCG CGTGAAAAA TGGCTGCGCT CCGCGAACAA GGAATCGATC CTTTCGGAAA	780
ACGTTTTGAA CGTACTGCAA ATTCACAAGA ATTAAGAGAT AAATATGCCA ACCTCGATAA	840
AGAACAATTA CACGATAAAA ACGAAACAGC TACTATCGCA GGACGCTTGA TAACCAAACG	900
TGGTAAAGGA AAAGTTGGTT TTGCCACCT TCAAGACCGC GAAGGCCAGA TTCAGATCTA	960
CGTTCGTAAG GATGCTGTCG GTGAAGAAAA CTACGAAATC TTCAAAAAAG CAGACCTTGG	1020
TGACTTCCTT GGTGTCGAAG GTGAAGTGAT GCGTACGGAT ATGGGAGAAC TCTCTATCAA	1080
GGCAACCCAC ATCACACACT TGTCTAAGGC TCTTCGTCCT CTTCTGAGA AATTCCATGG	1140
TTTGACAGAC GTTGAAACAA TTTACCGTAA ACGTTACCTT GACTTGATTT CTAATCGTGA	1200
AAGCTTTGAA CGCTTTGTCA CTCGTTCAAA AATCATCTCT GAAATCCGTC GTTACCTTGA	1260
CCAAAAAGGA TTCCTTGAAG TGGAAACACC TGTCTTCAT AATGAAGCCG GTGGTGCTGC	1320
TGCCCGTCCA TTTATCACCC ACCACAATGC CCAAAACATT GACATGGTGC TTCGTATCGC	1380
GA CTGAGCTT CACTTAAAC GCCTTATCGT GGGTGGTATG GAACGTGTCT ATGAAATTGG	1440
CCGTATCTTC CGTAACGAAG GAATGGACGC TACTCATAAC CCTGAGTTCA CTTCTATCGA	1500
AGTTTACCAA GCTTATGCAG ACTTCCAAGA CATCATGGAC TTGACTGAAG GCATTATCCA	1560
ACACGCTGCT AAATCAGTCA AAGGTGATGG CCCAGTCAAC TACCAAGGTA CTGAAATCAA	1620
GATTAACGAA CCATTTAAGC GTGTTTATAT GGTGGATGCT ATCAGAGAAA TTA CTGGTGT	1680
CGATTTCTGG CAAGACATGA CTTTGAAGA AGCTAAAGCT ATCGCTGCTG AGAAGAAAGT	1740
TCCAGTTGAG AAACACTACA CTGAGGTTGG TCACATCATC AATGCCTTCT TTGAAGAGTT	1800

971

TGTTGAAGAA ACTTTAATCC AACCAACCTT TGTCTATGGA CATCCAGTAG CTGTATCTCC	1860
ACTCGCTAAG AAAAATCCTG AAGACCAACG CTTTACTGAC CGTTTCGAGC TCTTTATCAT	1920
GACTAAGGAG TACGGTAATG CTTTACTGA GTTGAACGAC CCAATCGACC AACTTAGCCG	1980
TTTTGAAGCC CAAGCTAAAG CCAAAGAACT TGGTGATGAT GAAGCGACAG GAATCGACTA	2040
TGACTACATT GAAGCTCTTG AATACGGTAT GCCACCAACA GGTGGTTTGG GAATCGGTAT	2100
CGACCGTCTC TGCATGCTCC TCACTGATAC AACAACTATC CGTGATGTAT TGCTCTTCCC	2160
AACAATGAAA TAAATTCTTA TCCTCTGGGT CTTATCAGAG GATTTTTTGA TTCAAAAAGA	2220
GACTGAATTT AAGGAGAAAA TGAAGTGTAG TATATTGAAA TTGAAATAGT ACACTTTGAT	2280
TTCTAAGACA TTGTTAGAAA TTGGTTTAAA TTCCCTAAGC AATTTGTGCA TGTTTTATTT	2340
CATTTTACGA TAGTACGCTG AAACCTTTCA AAAAGTACTA GAAATTGACT TGGATTCCCC	2400
AATTGATTTG TTCAGATTCA CTATAAATAA AAAATTAATA AGTGGGATAG GAAGTTAGCG	2460
TCAACTAGGA TAGTATCTTG CTTAAACAGT ATATATGGGA TTGATATAAG TCCATAGGTC	2520
CTATTAGAGG ATGTTCTGGT GTCTTATTCA CTGTTTTTTT ATAGTATTAG TAGATAGAAT	2580
CAGCAAATAA AAACCCAAAT CATTCATACC TCTCTCAACT AGATGTAAC TACAAAACCC	2640
CTGACCTCAT GAGCCACTTT CTTCCTCCTC ATGAGGTCAG TTTTACTTTC TGCTGTTCCA	2700
GTATCGTTTT TCCTCGCTAG ATTCCTCAA AAGGGCAGAC TCCTCCCTTG GTGCGTCACA	2760
CGATTTTTTC ATCTCGACTG TTCTTTAATG CATCATTAAC GACGCTTTTC TTCTAGGTGG	2820
TTCATAAGGA ACAGGAAGAT TCAGGTTGAC TTTTCTAATC CTAGAATAAA GTGCTGAAAA	2880
CAATTCGGAA TAGGCATAGA GACTAGACAA TTTGAGGAGC TGCTTCCGTC CTGTTCGAAC	2940
ACATTTTCCC ACCACGTGAA GAAAAAGATG GCGGAAGCGT TTGATTGTTA AAGTTTGGAA	3000
GTCACCTCCA GCTAGATGTT TGAGAAAAAG ATAGAGATTG TAGGCGATAC AGCTCATCAT	3060
CATACGAACT TCGTTTTTGA TTAAGGTTGA ACTATCCGTT TTATCGCCAA AAAATCCCTC	3120
CTTCATCTCC TTGATGAAAT TCTCGGCTTG ACCACGTCCA CGATAAAGCT GAAACTGGTC	3180
TTGGCTTGTT CCACTCGTCA TATTTGTAAC GAGAGAAATA ACATCGTAGA AC	3232

(2) INFORMATION FOR SEQ ID NO: 145:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 10711 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

972

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 145:

CCGGAGAAAA TGATGAAAAG TTCAAACTA TTTGCCCTTG CGGGCGTGAC ATTATTGGCG	60
GCGACTACTT TAGCTGCATG CTCTGGATCA GOTTCAAGCA CTAAAGGTGA GAAGACATTC	120
TCATACATTT ATGAGACAGA CCCTGATAAC CTCAACTATT TGACAACTGC TAAGGCTGCG	180
ACACAAATAT TACCAGTAAC GTGGTTGATG GTTTGCTAGA AATGATCGC TACGGGAACT	240
TTGTGCCGTC TATGGCTGAG GATTGGTCTG TATCCAAGGA TGGATTGACT TACACTTATA	300
CTATCCGTAA GGATGCAAAA TGGTATACTT CTGAAGGTGA AGAATACGCG GCAGTCAAAG	360
CTCAAGACTT TGTAACAGGA TTAAATATG CTGCTGATAA AAAATCAGAT GCTCTTTACC	420
TTGTTCAAGA ATCAATCAAA GGGTTGGATG CCTATGTAAG AGGGGAAATC AAAGATTTCT	480
CACAAGTAGG AATTAAGGCT CTGGATGAAC AGACAGTTCA GTACACTTTG AACAAACCAG	540
AAAGCTTCTG GAATCTAAG ACAACCATGG GTGTGCTTGC GCCAGTTAAT GAAGAGTTTT	600
TGAATTCAAA AGGAGATGAT TTTGCCAAAG CTACGGATCC AAGTAGTCTC TTGTATAACG	660
GTCCTTATTT GTTGAAATCC ATTGTGACCA AATCCTCTGT TGAATTTGCG AAAAATCCGA	720
ACTACTGGGA TAAGGACAAT GTGCATGTTG ACAAAGTTAA ATTGTCATTC TGGGATGGTC	780
AAGATACCAG CAAACCTGCA GAAAACCTTA AAGATGGTAG CCTTACAGCA GCTCGTCTCT	840
ATCCAACAAG TGCAAGTTTC GCAGAACTTG AGAAGAGTAT GAAGGACAAT ATTGTCTATA	900
CTCAACAAGA CTCTATTACG TATCTAGTTG GTACAAATAT TGACCGTCAG TCCTATAAAT	960
ACACATCTAA GACCAGCGAC GAACAAAAGG CATCGACTAA AAAGGCTCTC TTAAACAAGG	1020
ATTTCCTGCA GGCTATTGCC TTTGGATTG ACCGTACAGC CTATGCCTCT CAGTTGAATG	1080
GACAACTGG AGCAAGTAAA ATCTTGCGTA ATCTCTTTGT GCCACCAACA TTTGTTCAAG	1140
CAGATGGTAA AAACCTTGGC GATATGGTCA AAGAGAAATT GGTCACTTAT GGGGATGAAT	1200
GGAAGGATGT TAATCTTGCA GATTCTCAGG ATGGTCTTTA CAATCCAGAA AAAGCCAAGG	1260
CTGAATTTGC TAAAGCTAAA TCAGCCTTAC AAGCAGAAGG AGTCCAATTC CCAATTCATT	1320
TGGATATGCC AGTTGACCAA ACAGCAACTA CAAAAGTTCA GCGCGTCCAA TCTATGAAAC	1380
AATCCTTGA AGCAACTTTA GGAGCTGATA ATGTCATTAT TGATATTCAA CAACTACAAA	1440
AAGACGAAGT AAACAATATT ACATATTTTG CTGAAAATGC TGCTGGCGAA GACTGGGATT	1500
TATCAGATAA TGTCCGTTGG GGTCCAGACT TTGCCGATCC ATCAACCTAC CTTGATATTA	1560
TCAAACCTTC TGTAGGAGAA AGTACTAAAA CATATTTAGG GTTTGACTCA GGGGAAGATA	1620
ATGTAGCTGC TAAAAAGTA GGTCTATATG ACTACGAAAA ATTGGTTACT GAGGCTGGTG	1680
ATGAGACTAC AGATGTTGCT AAACGCTATG ATAAATACGC TGCAGCCCAA GCTTGGTTGA	1740

973

CAGATAGTGC TTTGATTATT CCAACTACAT CTCGTACAGG GCGTCCAATC TTGTCTAAGA	1800
TGGTACCATT TACAATACCA TTTGCATTGT CAGGAAATAA AGGTACAAGT GAACCAGTCT	1860
TGTATAAATA CTTGGAACCT CAAGACAAGG CAGTCACTGT AGATGAATAC CAAAAAGCTC	1920
AGGAAAAATG GATGAAAGAA AAAGAAGAGT CTAATAAAAA GGCTCAAGAA GATCTCGCAA	1980
AACATGTGAA ATAAGTGTG CAAAATATAA GAAAGGATT AGTATTTCCC TTGAATGCTG	2040
AATCCTTTTT TACATTTGTA AAGAAAGATT CTAATATGTA CGGACCCCCA AAAGTTGGAG	2100
CCTCTTTTTG TCAGAATAGA GAAAATTTTT GTTAATTTTA CTTGTTTCCT ATTGCTTTCT	2160
CAGCTATTAT TTGTTATATT AAAAGTATAA TTATTTTTTA TTTATCAGAG TTAAGCATTG	2220
CACTTTCAGA GGAAGGAGTA TTTTTTAAAA AGAAAATGTA AACGTTTGCT CAAAAATGAA	2280
AGGATTTAGA AGTTTATGAA TAAAGGATTA TTTGAAAAAC GTTGTAATA TAGTATTCGG	2340
AAATTTTCAT TAGGTGTTGC TTCTGTTATG ATTGGAGCTG CATTCTTTGG GACAAGTCCG	2400
GTCTTGCGAG ATAGCGTGCA GTCTGGTTCC ACGGCGAACT TACCAGCTGA TTTAGCTACT	2460
GCTCTTGCAA CAGCAAAGA GAATGATGGG CGTGATTTTG AAGCGCCTAA GGTGGGAGAA	2520
GACCAAGGTT CTCCAGAAGT TACAGATGGA CCTAAGACAG AAGAAGAACT ATTAGCACTT	2580
GAAAAAGAAA AACCGGCTGA AGAAAAACCA AAAGAGGATA AACCTGCAGC TGCTAAACCT	2640
GAAACACCTA AGACGGTAAC CCCTGAATGG CAAACGGTAG CGAATAAAGA GCAACAGGGA	2700
ACAGTCACTA TCCGAGAAGA AAAAGGTGTC CGCTACAACC AACTATCCTC AACTGCTCAA	2760
AATGATAACG CAGGCAAACC AGCCCTGTTT GAAAAGAAGG GCTTGACCGT TGATGCCAAT	2820
GGAAATGCAA CTGTTGATTT AACCTTCAA GATGATTCTG AAAAGGGCAA ATCAGCCTTT	2880
GGTGTCTTTT TGAAATTTAA AGATACCAAG AATAATGTTT TTGTCGGTTA TGACAAGGAT	2940
GGCTGGTTCT GGGAGTATAA ATCTCCAACA ACTAGCACTT GGTATAGAGG TAGTCGTGTT	3000
GCTGCTCCTG AAACAGGATC AACAAACCGT CTCTCTATCA CTCTCAAGTC AGACGGTCAG	3060
CTAAATGCCA GCAATAATGA TGTCAATCTC TTTGACACAG TGACTCTACC AGCTGCGGTC	3120
AATGACCATC TTAATAATGA GAAGAAGATT CTTCTCAAGG CGGGCTCTTA TGACGATGAG	3180
CGAACAGTTG TTAGCGTTAA AACGGATAAC CAAGAGGGGG TAAAAACAGA GGATACCCCT	3240
GCTGAAAAAG AAACAGGTCC TGAAGTTGAT GATAGCAAGG TGACTTATGA CACGATTCAG	3300
TCTAAGGTCC TCAAAGCAGT GATTGACCAA GCCTTCCCTC GTGTCAAGGA ATACAGCTTG	3360
AACGGGCATA CTTTGCCAGG ACAGGTGCAA CAGTTCAACC AAGTCTTTAT CAATAACCAC	3420
CGAATCACCC CTGAAGTCAC TTATAAGAAA ATCAATGAGA CAACAGCAGA GTACTTGATG	3480

974

AAGCTTCGCG ATGATGCTCA CTTAATCAAT GCGGAAATGA CAGTACGCTT GCAAGTTGTA	3540
GACAATCAAT TGCACCTTGA TGTGACTAAG ATTGTCAACC ACAATCAAGT CACTCCAGGT	3600
CAAAAGATTG ATGACGAAAG CAACTACTT TCTTCTATTA GTTTCCTCGG CAATGCTTTA	3660
GTCTCTGTTT CTAGTAATCA AACTGGTGCT AAGTTTGATG GGGCAACCAT GTCAAACAAT	3720
ACGCATGTCA GCGGAGATGA TCATATCGAT GTAACCAATC CAATGAAGGA TTTGGCTAAG	3780
GGTTACATGT ATGGATTTGT TTCTACAGAT AAGCTTGCTG CTGGTGTTTG GAGTAACTCT	3840
CAAAACAGCT ATGGTGGTGG TTCGAATGAC TGGACTCGTT TGACAGCTTA TAAAGAAACA	3900
GTCGGAAATG CCAACTATGT AGGAATCCAC AGCTCTGAAT GGCAATGGGA AAAAGCTTAT	3960
AAGGGCATTG TTTTCCCAGA ATACACGAAG GAACTTCCAA GTGCTAAGGT TGTATCACT	4020
GAAGATGCCA ATGCAGACAA GAACGTTGAT TGGCAAGATG GTGCCATTGC TTATCGTAGC	4080
ATTATGAACA ATCCTCAAGG TTGGGAAAAA GTTAAGGATA TCACAGCTTA CCGTATCGCG	4140
ATGAACCTTG GTTCTCAAGC AAAAAACCA TTCCTTATGA CTTGGATGG TATCAAGAAA	4200
ATCAATCTCC ATACAGATGG TCTTGGGCAA GGTGTTCTCC TTAAAGGATA TGGTAGCGAA	4260
GGCCATGACT CTGGTCACTT GAACTATGCT GATATTGGTA AGCGTATCGG TGGTGTGAA	4320
GACTTCAAGA CCCTAATTGA GAAGGCTAAG AAATATGGAG CTCATCTAGG TATCCACGTT	4380
AACGCTTCAG AAACCTATCC TGAGTCTAAA TACTTCAATG AAAAAATTCT CCGTAAGAAT	4440
CCAGATGGAA GCTATAGCTA TGGTTGGAAC TGGCTAGATC AAGGTATCAA CATTGATGCT	4500
GCCTATGACC TAGCTCATGG TCGTTTGGCA CGTTGGGAAG ATTTGAAGAA AAAACTTGGT	4560
GACGGTCTCG ACTTTATCTA TGTGGACGTT TGGGGTAATG GTCAATCAGG TGATAACGGT	4620
GCCTGGGCTA CCCACGTTCT TGCTAAAGAA ATTAACAAAC AAGGCTGGCG CTTTGGGATC	4680
GAGTGGGGCC ATGGTGGTGA GTACGACTCT ACCTTCCATC ACTGGGCAGC TGACTTGACC	4740
TACGGTGGCT ACACCAATAA AGGTATCAAC AGTGCCATCA CCCGCTTTAT CCGTAACCAC	4800
CAAAAAGATG CTTGGGTAGG GGAATACAGA AGTTATGGTG GTGCAGCCAA CTATCCACTG	4860
CTAGGTGGCT ACAGCATGAA AGACTTTGAA GGCTGGCAGG GAAGAAGTGA CTACAATGGC	4920
TATGTAACCA ACTTATTTGC CCATGACGTC ATGACTAAGT ACTTCCAACA CTTCACTGTA	4980
AGTAAATGGG AAAATGGTAC ACCGGTGACT ATGACCGATA ACGGTAGCAC CTATAAATGG	5040
ACTCCAGAAA TGCGAGTGA ATTGGTAGAT GCTGACAATA ATAAAGTAGT TGTAACCTCGT	5100
AAGTCAAATG ATGTCAATAG TCCACAATAT CGCGAACGTA CAGTAACGCT CAACGGACGT	5160
GTCATCCAAG ATGTTTCAGC TTACTTGACT CCTTGGAACT GGGATGCAAA TGGTAAGAAA	5220
CTTTCTACTG ATAAGGAAAA GATGTACTAC TTCAATACGC AGGCCGGTGC AACAACTTGG	5280

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ACCCTTCCAA GCGATTGGGC AAAGAGCAAG GTTTACCTTT ACAAGCTAAC TGACCAAGGT	5340
AAGACAGAAG AGCAAGAAGT AACTGTAAAA GATGGTAAAA TTACCCTAGA TCTTCTAGCA	5400
AATCAACCAT ACGTTCTCTA TCGTTCGAAA CAACTAATC CTGAAATGTC ATGGAGTGAA	5460
GGCATGCACA TCTATGACCA AGGATTTAAT AGCGGTACCT TGAAACATTG GACCATTTC	5520
GGCGATGCTT CTAAGGCAGA AATTGTCAAG TCTCAAGGGG CAAACGATAT GCTTCGTATT	5580
CAAGGAAACA AAGAAAAAGT TAGTCTCACT CAGAAATTAA CTGGCTTGAA ACCAAATACC	5640
AAGTATGCCG TTTATGTTGG TGTAGATAAC CGTAGTAATG CCAAGGCAAG TATCACTGTG	5700
AATACTGGTG AAAAAGAAGT GACTACTTAT ACCAATAAGT CTCTCGCGCT CAACTATGTT	5760
AAGGCCTACG CCCACAATAC ACGTCGTGAC AATGCTACAG TTGACGATAC AAGTTACTTC	5820
CAAAACATGT ACGCCTTCTT TACAACCTGGA GCGGACGTCT CAAATGTTAC TCTGACATTG	5880
AGTCGTGAAG CTGGTGATCA AGCAACTTAC TTTGATGAAA TTCGTACCTT TGAAAACAAT	5940
TCAAGCATGT ACGGAGACAA GCATGATACA GGTAAAGGCA CCTTCAAGCA AGACTTTGAA	6000
AATGTTGCTC AGGGTATCTT CCCATTTGTA GTGGGTGGTG TCGAAGGTGT TGAAGATAAC	6060
CGCACTCACT TGTCTGAAAA ACACAATCCA TATACACAAC GTGGTTGGAA TGGTAAGAAA	6120
GTCGATGATG TTATCGAAGG AAATTGGTCA CTCAAGACAA ATGGACTAGT GAGCCGTCGT	6180
AACTTGGTTT ACCAAACCAT CCCACAAAAC TTCGTTTTTG AAGCAGGTAA GACCTACCGT	6240
GTAACCTTTG AATACGAAGC AGGATCAGAC AATACCTATG CTTTTGTAGT CGGTAAGGGA	6300
GAATTCCAGT CAGGTCGTCG TGGTACTCAA GCAAGCAACT TGGAAATGCA TGAATTGCCA	6360
AATACTTGGA CAGATTCTAA GAAAGCCAAG AAGGCAACCT TCCTTGTGAC AGGTGCAGAA	6420
ACAGGCGATA CTTGGGTAGG TATCTACTCA ACTGGAAATG CAAGTAATAC TCGTGGTGAT	6480
TCTGGTGGAA ATGCCAACTT CCGTGGTTAT AACGACTTCA TGATGGATAA TCTTCAAATC	6540
GAAGAAATTA CCCTAACAGG TAAGATGTTG ACAGAAAATG CTCTGAAGAA CTACTTGCCA	6600
ACGGTTGCCA TGACTAACTA CACCAAAGAG TCTATGGATG CTTTGAAAGA GGCGGTCTTT	6660
AACCTCAGTC AGGCCGATGA TGATATCAGT GTGGAAGAAG CGCGTGCAGA GATTGCCAAG	6720
ATTGAAGCTT TGAAGAATGC TTTGGTTCAG AAGAAGACGG CTTTGGTAGC AGATGACTTT	6780
GCAAGTCTTA CAGCTCCTGC TCAGGCTCAA GAAGGTCTTG CAAATGCCTT TGATGGCAAT	6840
GTGTCTAGTC TATGGCATAC ATCTTGGAAT GGTGGAGATG TAGGCAAGCC TGCAACTATG	6900
GTCTTGAAAG AACCAACTGA AATCACAGGA CTTGCTATG TTCCGCGTGG ATCAGGTTCA	6960
AATGGTAACT TGCGAGATGT GAAACTTGTT GTGACAGATG AGTCTGGCAA GGAGCATACC	7020

976

TTTACTGCAA CTGATTGGCC AAATAACAAC AAACCAAAAG ATATTGACTT TGGTAAGACA	7080
ATCAAGGCTA AGAAAATTGT CCTTACTGGT ACCAAGACAT ACGGAGATGG TGGAGATAAA	7140
TACCAATCTG CAGCGGAACT TATCTTTACT CGTCCACAGG TAGCAGAAAC ACCTCTTGAC	7200
TTGTCAGGCT ATGAAGCAGC TTTGGTTAAG GCTCAGAAAT TAACAGACAA AGACAATCAA	7260
GAGGAAGTAG CTAGCGTTCA GGCAAGCATG AAATATGCCA CGGATAACCA TCTCTTGACG	7320
GAAAGAATGG TCGAATACTT TGCAGATTAT CTCAACCAAT TAAAAGATTG TGCTACGAAA	7380
CCAGATGCTC CAACTGTAGA GAAACCTGAG TTTAAACTTA GATCTTTAGC TTCCGAGCAA	7440
GGTAAGACGC CAGATTATAA GCAAGAAATA GCTAGACCAG AAACACCTGA ACAAATCTTG	7500
CCAGCAACAG GTGAGAGTCA ATCTGACACA GCCCTCATCC TAGCAAGTGT TAGTCTAGCC	7560
CTATCTGCTC TCTTTGTAGT AAAAACGAAG AAAGACTAGT ATTTAGTAAA ACCTCTTAAC	7620
AAGATTACGG AAGCAGTCTC TATCTTTTCC AATGAGGTTT ATAGTACAGA AAAAGCCTGA	7680
GAAGATGTCT TCTCAGGCTT TTGTTAAGCA CATAAATACA ATAGTGCTAT GACAAAATCA	7740
CCCAGAAAAA TCTGGGTGAT AAATGTTATG GTTGTGCTGG TTGAGGATTG TGATTTTGTT	7800
GATCAGGGGT TGTATTTGAT TGTGCGTAT TATTGTTAGG ATTGGTAGTC GTACTATTAT	7860
TTGTGCTTGG AGTGGTTGAG CTAGACTGTG AAGTTGAACT ATCTGATGAT GAGCTTGAAC	7920
TTTCAGTTGA TGGGGGTTGT TGTGGAGCAG GTGAGTTCCA CGTAGAACGA GCACCATTTT	7980
TAAATACGAA TTCTCCATTT CTGTAGAGCC CCTCTGGTAT ATTCCAATCT TCTGGATTGC	8040
TTCTTCAGA CAGGTAGGTC ATCATAGAGC GGTAAACTTT GGCAGCGACC GTAAGGCCAT	8100
TGCCTACAAG TGGTGTCAGA CGGTTAGAAT AGCCTGTCCA TACAGCCATT GAATATTTAC	8160
GCGTATAGCC AGCAAATAGT TCATCAGGTG CTACAAATTG AGAGGTCTTG ATGTGGTTTT	8220
CAATTTCTC GTCTGTATAG TTAGAGGTTT CTGTTTTACC AGCCTGAGGG AGCCAAGCAA	8280
GATAGGCATT TCGTCCAGTT CCATAAGTCA AGACTGTTTT CATCATGTCG GTCATCATAT	8340
AGGCTGTCGT TTCCTTCATG GCACGAGTTC CGACATTAGA GAACTCTTTT TCACTCCCAT	8400
CACTAAAGAC GACTTTATGG ATATACATTG GTTTATAGTA AGTTCCACCA TTTGCAAAGG	8460
CAGCGTAAGC AGCAGCCATC TTTTCACTAC TTGCTCCATA TTTTTGTCT GATTCGGTTG	8520
TGTTACTTGA AATGGCATTG GAGTAGTGAA TACTTGGGTA GTCGATTCCT AGACCATTTA	8580
GGAAAGTCTT GCGCGGTTG AGTCCGACCT TGTTTAGAGT TTCCACGGCT GGGACGTTTC	8640
GCGATTGTTG CAGGGCGTAT TGCAAGGTGA TGTGCCCCA GTAGCCCCA TCCCAGTTAT	8700
AAACAGGAGT ATTTGTCCCA GGGTAGTTAT AGGGCTCATC GTGAACGATA GTAGCAGTTG	8760
AATCGTAGAC ACCGTACTCC AAGGCAGGAG CATAGTCTGT GATCGGTTTC ATAGTTGATC	8820



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CCCAGTCGCG GTTTGTTTCT ACTGCTTGGT TAATTCCGAA GGAAACATTA CTTGACTGAT	8880
GGCGTGCTCC TAGCTGGGCA ATGACTTTAC CGTTAGAAAC ATCAACAATG GTAGAAGCGA	8940
CTTGCAATTC ATCGTCTGGA TAGGCAACGT ATTCGTCTGT ATTGTAAATA TCCCACAGAT	9000
GTGTTTGAGC TTCTTGGTCT ACATTTGTGT AGACATCCAT CCCAGTTGTG AGTAGGTTAT	9060
AGCCTGTTTC TTCTTCAACT TGATTGATGA CTTCCTTGAG GTAATTATCC ATGTAAGCAG	9120
GGTAATTACT TGCTGATTTG AGACTTTGTA GTCCATCAGT AATTGGTGTA TTGACTGCTT	9180
TCTCATACTG TTCAGCAGAG ATGTAGCCTT GATTTTTCAT TTCAGATAAG ACCAAGTTTC	9240
GGCGGTCTTG GGCTGCTTCT GGATGTGAAT AGGGGTCATA TTGGTTTGGT GCCTGAGGCA	9300
TTCCAGCCAG CAAGGCTAAC TGAGGTAAAC TTAAATTATT GAGGTCTTTA CCATAGTAGT	9360
TTTGAGCTGC TGTCTGCATT CCATAGTTCC CATTAGACAT GTAGACCTTA TTTATATAGT	9420
AGGTCAAGAT TTCTTGCTTG GTTGCTTTTT GTTCTAACTG AATCGCTAAC CAAGCTTCCT	9480
GAGCCTTACG AGAAATAGTC TGGTCGGAAG TCGAAGTTGA AAAGTAAGTC AACTTAATCA	9540
ACTGTTGGGT GAGAGTTGAT CCACCTTGGA GGGAAATTGCT TTGCAGATTG CGCAAGAAAG	9600
CTCCCAGGAT ACGGATGGTA TCAATCCCCC TGTGGTCGAA GAAGCGATGG TCTTCGATAG	9660
AAACGATTGC CTTAACCAAA TCTGTGGGAA TATCATTAGC TTGGGCATTG ACGCGGCGTT	9720
CAGAACCCAA GTCAGCAATG AGTTGATTTT TATTGTCTGA GATTTTACTA GAAGTTGTTG	9780
CAACTAGTTT ACTCTCGGAT AGGCTAGGAG CCTTGCTAAC GTAGTAGAAA AAAACTCCTC	9840
CGCCTAAGAC AATGGCTGCG ATAACCAAGC TTAAGAAGCT AATGCTCAGA TACTTGATTA	9900
GGCGCAGAAT CGTTGGTTTG TTCATCTTGT TTTACCACCT AATAAATGTT CTTTGATAAC	9960
ATTGAGATAA GGAATTTGAG GGAAGGCACC AGCCTTGATT TCATATCCAT ATTCTCGAAT	10020
ATATTCAAGT GGCATTGATT TTTGTCCCTT ATCTTGATGA TAGAAGCGAA TCAAATCGAA	10080
TGCCGGCAAT AAGTAGGTTT CTTGCTGAGA AGAAAAGTGA AGAAGGACAA AGCAGATTCC	10140
TTGTTGGGCA AGGACTTGTT CCATATGCTG AATCTGATGT GGATGAAAAT TTTTCATCGG	10200
AATCGCACGT TTTTGTMTTG TTTCTTGAC TTCAAAGTCG ATGTAATATC CATTATAAAC	10260
GCCAGAATAG TCCGTCGTTG AAGCTTGTCG AAAATAGGCT TCAACAATCT TGGCAGGACT	10320
TCGTTGTGGA TAGTCCACTT GTACGATTTG AATAGGAGTT GGTTCCTTAT GTATAACAGC	10380
CAAGCCCTGA GACAAATAGT AGTCGTTGGT AGCATTGATC ATCTTTTCAA AGGGTACCGA	10440
GCTCGAATTC GTAATCATGT CATAGCTGTT TCCTGTGTGA AATTGTTATC CGCTCACAAT	10500
TCCACACAAC ATACGAGCCG GAAGCATAAA GTGTAAAGCC TGGGGTGCCT AATGAGTGAG	10560

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CTAACTCACA TTAATTGCGT TCGCTCACT GCCCGCTTTC CAGTCGGGAA ACCTGTCGTG	10620
CCAGCTGCAT TAATGAATCG GCCAACGCGC GGGGAGAGGC GGTTCGCGTA TTGGGCGCTC	10680
TTCCGCTTCC TCGCTCACTG ACTCGCTGCG C	10711

(2) INFORMATION FOR SEQ ID NO: 146:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 11887 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 146:

TACATTCATT CCATCGGCTA CTCCATAATA CTTAGATAAA ACCATAGCTG AAGTCGAATA	60
CGGATACTGT AAAGTATTAT CAATTTTAAT CAAATCATCA TTACCGATAA TACTTCTGAT	120
TGCTTTTGGT AGTATGAACC ATACGTTGGT GAAATCTCAG ATAATGAAGA ATCATTAGAC	180
TCTGGACCTT TTTCTAGTGT CTCACCTACC TCATATTCTT CACCCTTACT AGAAATAACA	240
CTCAAAGCAG ATACTGTGCA TAACTGGCTA GCCAATAAAG TACTCGCAAT AATTGAAATA	300
CCCAATTTT TATAAACAGT TTTCTTCATT ATTGTATCCT CCTAATGTAA TTATAGCGTA	360
CTATTCTAAA TTTCTTAATC TACTATAGAA TCAAGAAATC TACCACCTTC TTAAATACC	420
CTCCATTATC ACATAAACAG GTAAACTTTT CAATTAATGA CTGCGCTTTT CAATCAGCT	480
AGAGGTACTT GCTTGCTTCT TTGATACTAA GTTCAGCCAT TCTTTCCTTG TTTTCTCAA	540
TAAAGCATGT TACCCAAGTG GGATTCGTTT TGGAGTAGTC TCGCAGAGTC CAGCCAATGG	600
CTTTATTGAT AAAAAATTCT GTTTGGTTCA AGTTATGAAG GAGAATCTTT TCCATTAAAT	660
GAGTATTGGT CTCTCTTTT CTTAACAACCT GGTGGTCAAT AGCGACACGT CTCAGCCAGA	720
TATTATCTGA TAGGCTCCAT TTTATACTCA ATGAAAATCA AAGAGCAAAC TAGGAAGCTA	780
GCCGCAGTTG CTCAAACAC TGTTTTGAGG TTGCAGATAG AGCTGACGTG GTTTGAAGAG	840
ATTTTCGAAG AGTATTAAGA TTATTTCTTC TAGTTCAGGG TGTTCATACA CCAAACCTCC	900
TACTACTCGA TCTAGGATAT CTACCGTGTC CCACAAGGAT TTTGTCACGA CTAAGTCTC	960
TAGCTTAGGC AAATCGGTTT CCTTTAGATA AGACTGCATT GCTTTCAAAT AGTTAGCAGC	1020
CACATATTGG TATTTCTAG GATCCTTTTC CCAGCAAGTG TCTGCAAAAT CCCAATCGAT	1080
AATCTTTGTT TTTTCGCTT CTGGAAAATA TTTTATAGAG TTTATTTCTT TCAGGCACCG	1140
CAATACCTAG AAAAGAAAAT TGATGGCGCA TATAGGCTTC CATGGACCTT GCTTTTTTAG	1200
AGTCTTTTGC TGCTTCTAGC TCCTCAAGTA AATCTGCTAA ACTCATCTAA AACTCCTCTT	1260

GCCCCACCAA ATGGTGCTGA AAGGCATAGA CAGCCGCCTG GGTACGATCG CTGACTTCAA	1320
GTTTGGCAAG AATATTGGAC ACGTGGGTCT TGACCGTCTT GAGAGAGATA AAGAGGTCAT	1380
CTGCGATGCG CTGATTTTCG TAGCCCTTGG CGATGAGTTG GAGAACATCT CGCTCACGCG	1440
CAGTCAATTC TTCATGAAGT TCCATATGAT TGGGTGGTA TTCAACCTTC TTGCTAACCT	1500
CTTGCTCAAT GGCCAGCTCG CCAGCAGCTA CCTTACTGAC GGCATGAAGC AATTCATCTG	1560
CACTAGAAGT CTTGAGCATA TAGCCTTTGG CACCAGCATC TAAGACTGGC ATGATTTTTT	1620
CATTGTCCAA ATAAGAGGTC ACAATCAAAA TCTTGGCTTC AGGCCATTCT TTAAGGATTG	1680
CTAAGGTCGC GTCAATCCCA TTCATCTCAG GCATGACAAT ATCCATGACA ATGACATCTG	1740
GACGCAGTTC CAAGGCCAAG TCAATCCCTT GAGACCCGTT GGACGCCTCA CCCACAACCT	1800
CTACATCGTC TTGGAGGTCA AAGTAGCTTT TCAAGCCCAA TCGGACCATT TCATGGTCAT	1860
CTACTAGTAA AATTTTCATC TTTACTCCTT TATCATTCCT TATCTAACAG GGGAATACGG	1920
ATATCAACCG CCAGCCCTTG CTTGGGAGCT GTCAAGAGTT GAACTGTTCC AGCCATATCT	1980
TCAACCCGCT CCTTGATATT TCGCAGTCCA TAACTCAAGT CGTCTAAGCT CCCTAATGG	2040
AAACCAATCC CATTGTCCAC CACCTTCAGT TGCAATTCAA CATCTGTCTG ATAGAGGTAG	2100
ACATCTAGGC AAGATGCCTG GGCATGGCGG AGGGTATTGC TAATCAACTC TTGCAGGATA	2160
CGGAAGATAT GCTCCTCGAT TTTCTTAGGC AATTTCTGCA TATTCTGCTT GAGACTAACC	2220
CTAAGATCAC TCTTGTCCTC AAGCTCTTTT AAAAGAATTT GAATCCCTTC TATCAAGCTC	2280
TTCTGCTCCA GTTCAACTGG TCGCAAATGC AAGAGCAAAA CCCGCAAATC CTTCTGGGCT	2340
GTTTCTAAAA TAGCTGTGAC ACTCTGCAAC TGGGTCTGCA TCTTTTCTCT ATCCAATTC	2400
AAAGCCTGCT GACTGATACC CGATAAAATC ATGTGGGCCG CAAACAACTC CTGACTGACT	2460
GTATCGTGCA AATCCCGAGC AATTCGCTTC CGTTCCTTCT CGATGATTTT CTCTTCCTGA	2520
GCAAGGCTCT GATTTTCAGC TTTTGAAGA GCCTCTGTCA AAAGGTTAAG TTTACCTGAT	2580
AAGGACTTGA AACTGGCATC CAAATCTGGA TCTGCAACCT GAACCACTTC TTGCCCTGCT	2640
AATAAACGCT TGAGATTAGC CTGCATTTTT CTTAGAGAAA GCTCTTCGAT CCCTCGCCAA	2700
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TCTGTTTTTT CGACATCGTG CAAAAAGATA GACCAGTCAA AATCAAGTAT TTCCAGCAAG	2820
CTGTGGGAGA AAAAAAGAC AAATAGGAAG GAGGTGAGAG CAATAATGAC ATAGGCTTGT	2880
TTTTTCATCC TCTAACCACC TCCACATCAC CAATCATAGT GGTCAAGAAA ATCTTGACAC	2940
TCTTGTTACT CTTGAGATAG TCTTTTGTTC CTTGATGATA GTGTTTATTG CGGAGGGCTC	3000

980			
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AGAGATTGAT ATCATCGAAT TGGCAAGTCT GGTAGCTTGA AAAATGATGA AGATTTCCAA	3240		
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CTTTTTCCTG GTTCATCATC GGGTAAAGAA GAAAGAGGCT ATAGATAACC GCAACAAAAA	3360		
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TCTATTTTAT CACAATTCAA AAAAGTCACC TCAGTCTGAG GATGGAAAAA AGGCGCTGGT	3660		
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ACGGTTCGTG ACAATCCAC AGCCTTAGCA CCAAAAACCA AGCACTTAAT CATATCCAGC	3900		
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ACAATAGGAA CGGGAATTTG CTGCTATAA TCTGCTAGAT GCGATTGCCA GCTTCTAAAC	4200		
TTCTTTTCTC CCTCGGGCAT GAGTAATTCC TGCATGACAT TGACATGCAC TTGCAATAGA	4260		
ACAGGATTCA TCTCTCTAC AGTCTGAAGT CCTAAGTCGA CAGGCTTGTC CAATCCAATA	4320		
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TTCTTGATAT AAGAGCTCAA TCCCCAGATC GGCCCAACGA TTTTTAAGG TTTTGGTTGA	4740		
TTGCGCATCA AAACCTAGGG CGATGCCACA GTCACCACCA CCAGCACCAC TACTCTTGGC	4800		

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TTTCCCCTGT TCCAAGGCTT CTACCAGAGA AGTCACCGTT TCTTTTGAGG AAGTTAAAAA	4980
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GGTCCATCCC ACTAAGAAAT CACATTCTAA AGTTGGTTTC ACTTGTGAAA TTGAAAAGCC	5100
CCAATCACGC TCCAGAACTG TCGCCAAGTT TTCTTCTTCT AACCAAGCAG CCACCTTCTG	5160
GCGATCAAAT GACTGGTAGA GAACCAAATC CTCTGCCACA ATACAGGCAA GGTGCCCCAT	5220
GGAACCATTG TCTCCTCGCT TAAGCAAGAC AGCGCTAGTC AGCTTGAACA AGAGCTCCTG	5280
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TTTCCAAAGT TAGAGAAATA CTGCTAGTAG CAGGCACCAT CTCTTTTCT TTTTCTTTC	6540

982

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CTTGCCCTTA TTTTGAACCA CTTGGATGGC TTCACGAGTA TGACCATAAA CACCCGTATC	6960
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AAAGCGAATA GGTGGTCAC TAAGACAGGT CTTAGCATCC AAACCACTAG GATTCATATG	7080
GGCAATCATT TCAGCTCGAT TGACCAAGAT TTCTAGTACA TCATGAGGCA GATCAGCCTG	7140
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GACACCAACT TTTTTGTCA TTTTTCCTT TTAGTAGACG AAAAAACGTC TTATTTTCA	7500
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TAATATTTGA TAAGTTATCC TAAAAGTATT ATTATGTTGT TGTGTTATAG ATTGATTGAA	8220
TCTAACTAAA GGATCCTATT CAATTACTAG AACTATCACA TACTCAAGGT CAGCTCACAG	8280
ATGAGCAACT ATTTTGGTTA CAATGTCTAC TAAATTTAAG TCAAACAAAT AATTTAGTCA	8340

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AAATTAAAAA AATAGAGGAA CATAAATATG ATTACAAAAC AGAATGTAAT AGTGTCTCTAC	8400
AATTTTCTACT AGATAAACT GTAAATTCTG AAGGAAGGAT CACTTCTTCA ACAGAATTTG	8460
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ATCTATGGTT ACTCCTACAT TTATTTTCTA TCAGTAAAAA TCAATACTAT CTACAATTAG	8700
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CATTGGGAAA ATCTGGTGTC CTATTATCAT TAATAAAATA CTATCAATTT ACCAATGACA	8820
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GAGATACAGC CAAAGAAAGC ATTTTAGACT ATAGCTTTGC TCATGGATAT TGTGGAATTG	8940
CATATGCTTT ATTTGCCTAT TCTAAAGTCT TAGAACCTTC TATGTTTTAT AATGATCTCC	9000
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TCAAACACGC ACTCTGGATT GCCAAAATCA AAATCCTGCT CTACGCTATT TTGACAGTAT	9720
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TCTCTGACAC CTGAGCTAC CTGTCTGCCT ACATGATGAA CGCCCTCTAC ATCAGTGTA	9840
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GCTTCATCCA ACAGACACTA GCACAACCTGA GCATTGGGCA ACTCCTCGCC CTGCTCTCCA	10260
TCATCATGTC TTGTGGAGCT ATCCTTGGCA ATATGACCAG CAGTAATCTA TTTAAAAATA	10320
TCCGTTTCAC GCACCTCTTG GTTTTCTGTG AGATTTCCCT ATTGACTCTA ATAACTAGTA	10380
TCCTTTGTCA AGCCTATATC GTAATTTTCA TGACCAGTTT CATCAGTTCT ACGATTATCG	10440
GCATTCTCAG CCCTCGCCTA CAAGCAGCTG TCTTTGCCCA TATCCCCAGT GACAAGATGG	10500
GGACGGTGGG CTCTGCTCTG AGCACAGTGG ACATTCTCGC CCGTCCCTG CTCTCCCTAT	10560
TAGCCCTATC CATAGCATCG GCGGTTTCGG TGCAGTTAGC ATTGATATTT TTGTATCTTA	10620
TTTTAATTGC TCTTATCTTT TGTCAATGGT TAGTCAAGTT CAACACTCAT AACTAACGAA	10680
AAAGCATGTG TAGATTTTAC ATGCTTTTAA TCTCCCCAAT CGTCAGGTCA AGTACAACAA	10740
AGTCACTTCT TTGATTAAGC GAGTGTCTA ATATAATTAT AAGCGCCCTG TCATTACCGA	10800
ACCCATTCGC CATTATAGTT GACAGAATAG CCATCTACGG TCGTATTCAC TGCCAAAGCA	10860
CCTGAGCTAT AAGCATAGTA CCAGTTGCCA TTGACCTGGA ACCAACCTGT CTTATGTCT	10920
CCATTACCTG CATTTAGGTA GTACCAAGTT GAACCATCTT GATACCAACC AGTTGCCATA	10980
GCTCCTGATG AACGGAGATA GTACCATTTG TTCCCAAGGT TTGCCCAACC TGTTTTCATA	11040
TGCCCATTG GGTGGTCTAA ATAATACCAA GTGGTACCTT CCTGATACCA GCCAGTGGCC	11100
ATTGCTCCTG AGGAACGGAG GTAGTACCAC TTATTACCTA GATATTGCCA ACCTGTTTGC	11160
ATAATACCAG TTGTTGGATC TAGGTAGTAC CAAGTCGAAT CATCGTTTAT CCACCCCGCA	11220
CGTCTTTTAC CACCAAGGTA GTTTTCTCCA TTAATTTCCG TCTTAGCTAG ATAATACCAG	11280
TTAGACTGAT CATAAAGCCA ACCTGTCTCT AAAGAATGAT TTTGATTAAA GTAATAGTTC	11340
GTATAATAAC GCTTCTCTTC TTTATCTTCT GAATCTTCAC GTTTTTCCCC GTACTTTCTT	11400
CCAACACTGT CTTTAGTTTT AATCTCTAAT GTTTTCCAAC CAACAACTC TTGTAGCACT	11460
CCATTTTTAT CGAAGTAGTA CCACTCTGAC TTTGGAAAAC CTTCTAATCT GATACCATTT	11520
GGGTAAGGAC CAATTGTACT ACCTTTAGAT GGAAACGGGA TATATTGCCA GCCGACAACC	11580
ATCTCTCCAG ATAGAGAATC AAAATAATAG TACTTACCAT CAATCACTCG CCAGTAGGTT	11640
TCTTTGAGGT CCCCCTTTTT GTAGTAGGTT CTTCCGTTTT CTTGGACAAA CTGCCATCCT	11700
TCAGAATCAT CTGCAAATAC TGTACTGGTC CCTAGCAAAC CAAAGAAAAA TACTGTCACT	11760
CCAACTTGCA TAGTTTTTTT CAAAATTTTC ATCTATATAC CCTCCAATAT TAAATCCACT	11820
CACCAGATGA GCGAAATTA TAACTTTTAC CATCGATAGT TTGGCTACCT GTAACCATTC	11880



985

CTCCAGG

11887

## (2) INFORMATION FOR SEQ ID NO: 147:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11140 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 147:

CCGGTATGTT CTGGAATACT ACCAATCTAA GCTGGCTGTG CCCTACAGTT TTACAACCTT	60
GTACGAATAC CTTAAGGAAT ATGACCGATT TTTTCAGCTGG GTTTTGGAGT CTGGTATTTT	120
AAACGCTGAT AAAATATCCG ATATTCCTTT ATCAGTTTTG GAAAATATGT CTAAGAAAGA	180
CATGGAATCC TTTATCCTTT ATCTACGTGA ACGTCCCTTG CTGAATGCTA ATACAACAAA	240
ACAAGGTGTT TCACAGACAA CTATCAATCG AACCTTATCA GCACTTTCTA GTCTTTACAA	300
GTATCTAACC GAGGAGGTTG AAAACGATCA GGGGGAACCT TATTTCTATC GTAATGTAAT	360
GAAAAAAGTT TCCACCAAGA AAAAGAAAGA AACCTTGCT GCCAGAGCTG AAAATATCAA	420
GCAAAAATC TTTCTAGGTG ATGAAACAGA AGGTTTTCTA ACTTATATCG ATCAAGAGCA	480
CCCACAACAG CTTTCAAATC GAGCTCTCTC ATCATTCAAC AAAAATAAAG AACGAGATTT	540
AGCCATTATT GCCCTTCTCT TGGCATCTGG TGTTGCTTA TCTGAAGCTG TTAATCTAGA	600
TCTAAGAGAT CTCAATCTAA AAATGATGGT TATTGATGTT ACTCGAAAAG GTTGCAAACG	660
TGACTCAGTC AATGTCGCTG CTTTGTCTAA ACCTTATTTA GAGAATTATC TGGCCATTCTG	720
GAATCAACGC TATAAAACGG AAAAAACAGA TACAGCCCTT TTTTAACTC TCTACAGAGG	780
TGTTCCCTAAT CGTATCGATG CTTCTAGCGT TGAGAAAATG GTTGCTAAAT ACTCAGAGGA	840
TTTTAAAGTG CGTGTAAAC CCCATAAACT GCGCCATACA CTAGCAACTA GGCTCTATGA	900
TGCGACTAAA TCACAAGTTT TAGTCAGTCA CCAACTAGGA CATGCTAGCA CACAAGTCAC	960
TGACCTCTAT ACCCATATTG TTAGTGATGA ACAAAGAAT GCTCTGGATA GTTTATGATT	1020
TTACGTATTT TAAATTATGT AAATAAATAT CAAAAAAGA AGTTGGCCAA CTTCTTTTTG	1080
ATTTATCCAA CTACCGCTTC AGCGATTCTC TCACGGCTAA TACCAGCGAA GTAGCGTGTG	1140
ATATCAATGG TTTTAGCGC CTTAAGAACA TCTTCGCGTT CGTATTTTAC CCCACGAAGG	1200
ACATCTTCTA CTGCAGCAAC GTCTTCAATA CCAAAGAAGT CACCATAAAT CTTGATGTCT	1260
TGGATTTTTG ATTCAGTAAC GTTAGCAAAG ACTTCAACCT TACCACTAGT GAATTTGATT	1320

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GATTCAAATT TATCTTTTGA AACCTTAAGG GCATTTGCGA GGACTGACAA ATCAACGTCA	1620
AAGAGCAAGC AACCGTGGTG CATGATACGG CCGTTGATAT AGGCTTGGGC ATTGCCACAG	1680
AACTTCTTAC CATCAATCTC AAGGTCATTA CGACCTGTGA ACTCAGCTTT AACCCCAAGT	1740
TGAGCCAGGG TATTGATAAC CGGAGTTGAG AAGCTCTTGA AGTCAAATGC CTTATTTTCA	1800
TCTTCTTTGG AGATGATCGT GTAGTTGAGG TTATTTAAAT CGTGGTAAAC AGCTCCACCA	1860
CCACTAATAC GGCGAACTAC CTCAATACCA TTTTCGCGAA CATAATCACG GTTGATTTCT	1920
TCGATAGTGT TCTGGTGACG ACCAACAATG ATAGATGGCT TGTTAATCCA AAGTAGGAAG	1980
ATTTGATCCT CATCCAAAAG GTGTTTAAAG GCGTATTCTT CCAAGGCAAT ATTAAGGCA	2040
GTGTCATTG AATGATTGAT AATGTATTTC ATGATATCCC TTTACTTTAT ATGATAGAAA	2100
CTGGAAATAA CCTTCCAGTC TAATCTATCT TCGTTTTATT TTTTCTTAGG TGAATGGATG	2160
GCCATTCTTA GAACATCTGC AAACGCTTCG TACATCACTT CAGAGTAAGT TGGGTGCCCC	2220
TGGATGGTCT TCAGCATTTT CTCAACAGTG ATTTCCATTT CGATGATGCT TGATGCTTCG	2280
TTTATTAATT CTGCGGCTGC AGGACCAATA ATGTGTACAC CAAGGATTTT TCCGTATTTT	2340
TTATCAGCGA TAACTTTTAC GAAACCTTGA GCTGCGTCAG ATGCAATAGC ACGACCGTTA	2400
GCAGCAAAGT TAAACTTACC GATGGCAACA TCGTATTCTT CACGGGCTTG TTCTTCTGTC	2460
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GCAACTGCAT GATTTCTTTT AAGGGCATTT TCAGCGGAAA CTTCACCCAT GCGGAAAGCT	2580
GCGTGAGCCA ACATCTTAGT ACCGTTGATG TCACCTGGTG CATAAATGCC TGGAACTGAA	2640
GTTTCCATGT ATTCGTTGAC CTTGATACAA CCACGATCCA ATTCAAATCT AACCTCTCA	2700
ATACCTTCAA GGTCTGGCAT ACGACCAATT GAAAGAAGAG CTTTGCTTGC GATGATATCG	2760
TCTTTTCCTT CAACCTTGAT ACGAAGTTGA CCATTTTCCT CAATGATTTT TTGCAGTTTA	2820
GTACCAGTCA AGATGGTCAT TCCTTTACGC TCAAGAATCA AGCGAAGGTT CTTAGAACT	2880
TCCACATCCA TAGCTGGAAC TATACGGTCC ATCATTTCGA TAACAGTCAC TTTTGAACCA	2940
AATGTCATGA AGGCCTGACC GAGTTCGATA CCGACAATC CACCACCGAT GATAACAAGG	3000
CTTTCTGGCA CTTGCTTCAT TTCAAGAATG TCATCACTAG TCATGACAAG TGGAGATTCC	3060
ATACCAGGGA CGTTGATCTT GTTGACTTTT GAACCACCAG CAAGAATGAT TTTCTTGGTT	3120

TCAAGCAATT CAGAACCATT TACCAAGACG TTCTTGTCTT TAGTGATTGT ACCAATTCCT	3180
TTATGAACAG TAACTCCGTA GCTACGAAGA AGTCCTGCAA CACCACCAAC AAGAGTATTA	3240
ACAACTTTAG ATTTAGTTTC TAAAAGTTTT TCCATATCAA CAGTGAAGTT AGGATTTTCA	3300
ATCACGATAC CACGATTTGC AGCATGACCG ATATTTTCAA TAATTTTCAGC GTTATGAAGG	3360
TAGGTCTTGG TTGGAATACA TCCACGGTTT AAGCAGGTTC CACCAAGTTC AGATTTCTCA	3420
ACAAGGGCAA CCTTACCGCC GAATTGGGCA GCTTTAATGG CTGCAACATA ACCAGCAGGA	3480
CCTCCACCAA TCACAACGAT ATCAAAAGCA TCATCGCTCT TACCATCATC GTTTGAGGTA	3540
CTTGCTACAG GTACAGGGCT AGCTTCTGGC GATGCTGCTC CAGCTGTTGG GATGTTTTCC	3600
CTTTCTTCAC CAAGGTAACC GATAACTTCC GTTACAGGGA CAGTTTCACC ATCTCCTTTG	3660
AGAATGGCAA TCAAGTACCC ATCTTCTTCG GCTTCCAATT CCATGCTGAC TTTATCAGTC	3720
ATGATTTCCA AAAGGATTTT TCCTTCTTTT ACAAATTCTC CGACTTTTTT ATTCCATTGG	3780
ACGATTGTC CTTCTGTCAT ATCCACGCCG GCTTTGGCA TAATTAATTC TAAGGCCATG	3840
TCTTCCTTCC TTTATCTATA TCTTAAAAAT GAATACTCTT GCTCTTAAAT TAACATTGAG	3900
ATTGGCGTTT CAATCAACTC TTTCAAGTCC TTCATAAATC TAGCACCAGC CATACCATCT	3960
ACGACACGGT GGTCAATGGT TAATCCTAAA CTCATGATTG GGCGAATCAC AATTTACCA	4020
TTGACGACAA CTGGCTTCTC GATTGTCGAA CTGACACCAA GGATAGCTGA GTTGGGTGG	4080
TTAATAATCG GACCAAAGGA CTGAACACCA AACATTCCCA AATTACTGAT TGTGAATGTT	4140
GAATTTTGTA ACTCACTTGG AGCCAATTTA CCATCCAAGG TACGGCCAAT AACATCCTTA	4200
AAGGCTACAA CCAGTTCTGA AAGACTCATC TTCTCAGCAT TGTAACAAC AGGTGTCATC	4260
AATCCATTAT CCATCCCAAC TGCCATGGCA AGATTGACAT AGTTGTGAGT GATAATAGTC	4320
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GTGCGCGCAG TCAAGTAAGA TTCAACCATG CGTTGGGCAA TAACCTTACG CATTGGTGTC	4560
ATTGGAATAC GTCGATTTT ACCATATGGT GTTACGTTAT CAGGGACTTC TTCCACTTTT	4620
TCAATCTGAG CAGGAGATTT GATGCTATCG TTTTCGATAT TTTCAGGAAG CAGGGCCAAA	4680
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TAAGTTTCCA CGTCTTCTTT GTGGACACGA CCGTTTGAC CTGAGCCAGA AACGTCGTAG	4860

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AGGTTTATCC CTAAATCATC CGCTAACTTT CTAGCTGCAG GAGTCGCTCT TAGCTTGTC	4920
TCAGCCATGA CCTCTCCAAT TCTATTTATG ATACAAAGGG CGTCAAAAGC GACTGAAAA	4980
TAGGAAATCG ACGATGGCTT CGATGAAGCC AAGGAGATT ATCTTTTTTC CGATCTTTTA	5040
GCCCGTGCTC TAATCTAAGA TATTAATGAC GAAGAGCTCT GCACCTAAAA GATACAAAGT	5100
TTCTCGTCAG CTTTATTTTA TTTACATAAC TTATCTTATG TAACCCTATT CTTTGTATA	5160
AGTTTTTCGG ATTGCATCTT TGATACTTTC AACTGTTGGA ATCATTGCAT TTTCTAGGTT	5220
TTGTGCATAA GGCATCGGCA CATCTTCTCC TGACAACGG CGAATTGGTG CATCTAGATA	5280
GTCAAATGCT TCTGATTCTG AAATAATAGC TGAAATTTC CCGATATAGC CACTTGTTTT	5340
GTGGGCATCG TTGACCAGAA CAACCTTACC AGTCTTCTTC ACTGAGTTTA TGATGATATC	5400
CTTATCAAGC GGAACAAGGG TACGTGGGTC AACAAATTTC ACTGAAATTC CTTCTTCTGC	5460
TAATCTTCA GCAGCTTGAA CCACACGGCG AAGCATTTTT CCATAAGTAA CAACTGTTAC	5520
ATCCGTTCCCT TGGCGTTTGA TTTCACCAAC CCCAAGTGA ATTGTGTAGT CTGGATCAAC	5580
TGGCACTCC CTTTTTGGT TAAATCTGA CTGTACTCA AGTATAATA CTGGGTTGTT	5640
ATCACGGATA GAAGACTTAA GCAGGCCTTT CATGTCCGCA GGTGTTCCAG GTGCCACAAC	5700
CTTAAGTCCT GGAATGTGAG TAAACCAAGA CTCTAGAGAT TGTGAGTGCT GGGCGGCAGA	5760
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CATGTAACGT GTTTTAGCAG CTTGGTTGAC GATATTGTCC ATGGCAATA CAGAGAAGTC	5880
CATGAAGGTC ATATCGACGA TTGGACGAAG TCCTGTCTATG GCTGCTCCTG CTGCTGCTCC	5940
AGAGATGGCA GCTTCAGAAA TCGGACAGTC ACGGACACGT TCTGGACCAA ATTCTCAAG	6000
CATTCCAACA GAAGTACCGA AGTCTCCTCC GAAGACACCG ACGTCTTCTC CCATCAAGAA	6060
CACATTTTCA TCGCGACGCA TTTCCTCAGA CATAGCAAGG ATAATGGTGT CACGGAAGGA	6120
CATTGTTTTT GTTTCCATTT TATCTCTTTC TCCTTAGTCT GCGTAAATAT CTTCAAAGGC	6180
TGATTCAAGC GGTGGGAATG GGCTTCTCTC TGCAAATTTA ACAGAAGCTT CTA CTGCTTC	6240
CTTTACTTGC GCTTGGATTT CTTCCAATTC TTCGGCACTT GCAATGTTAT TTTCAATAAG	6300
GTAATTGCGG AGGTTTTTCGA TTGGATCTTT TTGTTTCCAC AATTCCACTT CTTACGCGT	6360
ACGATATTTA CCAGGGTCAG ATGATGAGTG ACCGAGCCAG CGATAAGTTA CACTTTCAAT	6420
CAAGACTGGA CCATTGCCAC TGCGAACATG GTCCACAGCT TTCTGAAATC CTTCATAGAC	6480
ATCGATGACA TTGTTACCGT CTTGATGAA CATTCAGGA ATTCCATAAG CGGCGCTACG	6540
TTGATGGATA TGTCTATAT TGGTCATTTT CTTGATATCC GCAGAGATAC CGTAACCGTT	6600
GTTAATGCAA TAGAAAATGA CTGGCAGGTT CCAGATAGAA GCCATGTTCA CTGCTTCGTG	6660

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TTTATTCATA GAAATCAACT TGGGTATCCA ACAATTTATC CCCATCATAA ACAAACCTGG	10260
CTGAAAAGAA GGGTTTATCC TCTAAAAGCC ACTCAACAAA GGTGTGGTCA CCTTCCCAAG	10320
TCGGCTTGCT CAAAACCTCA TCATAGGGAA CCCATTCTAG CGTCCCCTCA TTGCAGTCAA	10380
TCAAGTCGCC CTCAAACCTCC GTCACCTTAA AACATAGGT GTACCAGTCT AAATCTGGTG	10440
TAAATTCAGG AAAAGTGATG ACACCTTTTA GAACTGGCTT GGCTTTGAGC CCTGTTTCTT	10500
CAAGGATTTC ACGCGCCGCG CATTCTGGG GCGTCTCTCC TCTCTTAGC TTACCACCCA	10560
CACCAATCCA TTTCCCTTCA TGGACATCAT TGGTTTCTT ATTACGATGG AGCATGAGCA	10620
GTTCTTTCCC ATTATCAATG TAGCAAATCG TCGCTAACTG AGGCATATTT TCTCCTTATC	10680
TAAGCCAATC GATTGGCTCT TGTCTGTCT CTTTAAAGAA TGCATTGGCC TTGGAAGG	10740
GCTTGAACCC CAAAATCCT CTATAAACCG ACAAAGGACT TGGATGGGCT GATTGATAA	10800
TCAAGTGATG AGGATTGGTA ACTAATGCCT TCTTCTTACG TGCATAAGCT CCCCAGAGTA	10860
CAAAAACGAC TGGTCTATCT AGATGATTGA CCACCTGAAT CACAGCATCA GTAAAAGGCT	10920
CCCAGATTG ACCAGCATGA CCATTGGCCT GTCCAGCAGG AACAGTCAA CAAGCATTA	10980
GAAGCAAGAC TCCTTGCTCA GCCCAAGCTG TCAAATCATG AGATTCTTA ACTCCGATAT	11040
CATCTGACAA TTCTTTCAAG ATATTTTGCA AGGATGGTGG AGCTGGGATA GAGTCAGGTA	11100
CAGAAAACT CAAGCCCTGC GCTTGACCTG GTCCGTGATA GGGGTCTTGC CCTAGAATTA	11160
CCACCTTAAC TTCTTCAAGC AGTGTGTCA AGAGAGCCTG AAAAACCTTT TCCTTGGGTG	11220
GATAATAAT CCCCTGAGAA TAGACCTGCT CCATAAACTG ATTGATTTTC CCGAAATAAC	11280
CCTCAGGTAA TTGCGCCTTA ATCAAAGCAT GCCAAGACGA GTGTTCCATA GCCGACTCGG	11340

## (2) INFORMATION FOR SEQ ID NO: 148:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 12127 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 148:

AAAAAATAGA CTTGTTAGAC TATAAATGTA GTAAGCCTAC ACAAGAAAAA TACATAGAGA	60
TAAAGGTGAT TATTATGAAA TTCAAAAAAA TGCTTACTCT TGCAGCCATT GGCTTATCAG	120
GATTTGGGCT TGTTGCCTGT GGCAATCAGT CAGCTGCTTC CAAACAGTCA GCTTCAGGAA	180
CGATTGAGGT GATTCACGA GAAATGGCT CTGGGACACG GGGTGCCTTC ACAGAAATCA	240

		992	
CAGGGATTCT	CAAAAAAGAC	GGTGATAAAA	AAATTGACAA CACTGCCAAA ACAGCTGTGA 300
TTCAAAATAG	TACAGAAGGT	GTCTCTCAG	CAGTTCAAGG GAATGCTAAT GCTATCGGCT 360
ACATCTCCTT	GGGATCTTTA	ACGAAATCTG	TCAAGGCTTT AGAGATTGAT GGTGTCAAGG 420
CTAGTCGAGA	CACAGTTTTA	GATGGTGAAT	ACCCTCTTCA ACGTCCCTTC AACATTGTTT 480
GGTCTTCTAA	TCTTTCCAAG	CTAGGTCAAG	ATTTTATCAG CTTTATCCAC TCCAAACAAG 540
GTCAACAAGT	GGTCACAGAT	AATAAATTTA	TTGAAGCTAA AACCGAAACC ACGGAATATA 600
CAAGCCAACA	CTTATCAGGC	AAGTTGTCTG	TTGTAGGTTT CACTTCAGTA TCTTCTTTAA 660
TGGAATAATT	AGCAGAAGCT	TATAAAAAAG	AAAATCCAGA AGTTACGATT GATATTACCT 720
CTAATGGGTC	TTCAGCAGGT	ATTACCGCTG	TTAAGGAGAA AACCGCTGAT ATTGGTATGG 780
TTTCTAGGGA	ATTAACCTCT	GAAGAAGGTA	AGAGTCTCAC CCATGATGCT ATTGCTTTAG 840
ACGGTATTGC	TGTTGTGGTC	AATAATGACA	ATAAGGCAAG CCAAGTCAGT ATGGCTGAAC 900
TTGCAGACGT	TTTAGTGGC	AAATTAACCA	CCTGGGACAA GATTAAATAA AATGTTTGCT 960
CCATAAATCT	CTAAAGAGAT	GCAGACGTTT	CATCGTACAA TAAGATAAAG AAGGCAAGTA 1020
GGGAGGTGTC	GTATCTCCCT	TACTTTCTTC	ACTAGAAAGG ACAAGATGTG ACAAAACAAG 1080
CCTTCAAAGA	AGCAGTTTTT	AGGGCAATTT	TTTTCATGAG TGCAACAGTA GCTGTTGTAG 1140
CTATTTTGCT	AATCTGTTTC	TTTATTTTTA	GTAATGGCTT ACCTTTCATA GCTAACTACG 1200
GCTTTGCCCG	TTTTTTATTA	GGCAGTGATT	GGTCGCCAAC GAACATTCCG GCAAGCTATG 1260
GTATTTTACC	AATGATCGTT	GGTTCCTTAT	TAATTACCTT AGGAGCGATT GTGATTGGGG 1320
TGCCAACAGG	CATCTTGACA	TCGGTGTTTA	TGGTTTATTA TTGTCCAAAG CCCGTCTATG 1380
GCTTCTTAAA	ATCAGCTATC	AACCTGATGG	CAGCCATTCC ATCTATTGTT TATGGTTTTT 1440
TCGGCCTACA	ATTATTGGTG	CCTTGGATTA	GAAGCTTTTT AGGAAATGGC ATGAGTGTCC 1500
TAACCGCTTC	GTTACTATTA	GGAATAATGA	TTTTGCCAAC CATTATCAGT TTGTCAGAAT 1560
CTGCTATCCG	AACAGTCCCC	AAAACGTATT	ATTCTGGTAG CTTGGCTCTA GGAGCTAGTC 1620
ATGAACGGAG	TATTTTTAGT	GTCATCTTGC	CAGTGCGAG ATCTGGTATT TTATCAGCAG 1680
TTATTTTAGG	AATCGGTCGC	GCAGTAGGTG	AAACCATGGC AGTTATTTTG GTGGCAGGCA 1740
ACCAGCCGAT	TATTCGAAGT	GGACTCTTTT	CAGGAACCAG AACCTTAACA ACCAATATTG 1800
TTCTGGAAAT	GGCTTACGCA	TCAGGTCAGC	ATAGGGAAGC CCTTATTGCA ACCTCAGCAG 1860
TTCTCTTTTT	CCTTATTCTC	TTGATTAAATG	CCTACTTTGC CTACTTGAAA GGAAATCAT 1920
CTTATGAGTA	AATACCTGCT	AAAACCTCTC	GTTTATTGTT TTTCAGCTTT AACCTTTGGC 1980
TCTCTCTTTT	TAATCATTGG	TTTTATCCTC	ATCAAAGGCT TACCTCATCT AAGTCTATCC 2040

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GAAAACACCT TCATTGGTCG CACCATCTCC AAAGAAGCAG ACAACGATT TACCGGTATT	6720
TTGCATTTGC TGA CTGAGGG CTGCACCGAC AGCGATCCCC ATACCACCAC CTACGATACC	6780
ATTGGCACCA AGGTTCCAG CATCAAGGTC AGCGATATGC ATAGATCCAC CTTTCCCTTT	6840
ACAGGTTCCA GTGTATTTAC CAAGGATTC AGCCATCATT CCGTTGAGGT CAATCCCTTT	6900
AGCAATAGCT TGCCCGTGTG CACGGTGGTT TGAGGTAATC AGATCATCTG GATTGAGAGC	6960
TAACATAGCC CCCACGTTAG CTGCCTCTTC-ACCAACAGAA AAGTGCCTCA TTCCTGGCAC	7020
TTTCCCTTTC TTTACTAATT GTGCAATTTT TAAGTCCATG CGACGGATT CTTCCATCTT	7080
ACGGAACATT TCTAGCAAAA GATTTTATC TAAAGTTGAC ATCTTCTTGC CTTTCTAACT	7140
TTCTTCTTAC CTTACTATTT TACCGCTTTT GGCAAACTACT GTCAAAGTTT TTCTAAAAGA	7200
AATTTACAA AATAAAAAAG AAAACCCCGT GAAACAAGG GATTTTCTTG TCAAGAATAT	7260
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AGTTAAACGC CAACGGTAGA GCGCCCCGCT CACAATCAAA CTAATAATCA AGCCGATCCA	7380
GTAAGAATAA GCTCCAAAAT CTGTTAGGGA ATCAAATAGC GTAAACACAGG GATTGCTACG	7440
CCCCAATAAC CAAGCAAACC AAGGTAAAA GGAATAACTG TATCCTTATA CCCCCGAAA	7500
ATTCCCTGAA GCGGCGCCGC AAAGGTATCT GCTAACTGGA AGAAAAGACT ATAAGTAAA	7560
AAACGCACTG TCAAATCGAT AAATTTTGGG TCGTTACCAT AAAGACTGGC CACATTTCCC	7620
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AGACCAATAT AGGTTTTCGC ATCATCAAT CGCTTGGCTC CCACTTCATA GGAAACGACA	7740
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GCTGACTGGT GACTAGCTAT AATCAAGGCG GAAAACCTAG CCATAATCAA GCCAACCCT	7860
GAAAAGATAG CCACTTCCGC GAAGACAGTT CCCCCAATAG GCAGACCTAA ACGAACTCCT	7920
TCCTTAATTT TATCCATATT AAGTGAATT CGTTTCTCAA GGTGTAAGGC TTTGAGCTTC	7980
TCCTGTTTAA ATAAAACCAG AACAGAAATC CCAAGCAAGA CCCAGTAGGC CAAGGATGTT	8040
CCTAAACCAG CACCAGCCCC TCCAGTTCT GGAACACCAA AGGCACCGTA AATCAAGAGA	8100
TAGTTAAATC CGCTATTGAG AGGGAGTAAC AAAAGCATGA GGTACATGGA CAGTTTGGTC	8160
AAGCCCAGCG AATCCAGCAA GGAACGAATG ACGCTAAAGA GCAACAAGGG GATAATCCCC	8220
ATAGATAAAA ACCAAAGATA GCGAACCGCT ACTGCCGCTA CTGCTGCTTC TAACCCAATA	8280
TGATTCAAGA TTATTGGTGC CAAGAAAAGT ACCATCCCCA GCAAGACCAC AGATAGGCCC	8340
AAGGCCAAAT AAATAAATTG GTAAAAATCA GACGCAACTT CTTCTTTTTT GCCTCGACCA	8400

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AGATGGTGAC CAATGATAGG CACCAAGGCT GACACAATCC CTGTTAGAAA TGTAAGAGAA	8460
GGATTCCAGA TACTGGTTGC CATAGATACA CCAGCCAAGT CCATAGTGTT GTATTGACCT	8520
GTCATTGCAG TATCAACAAA AGAGGCAGAA TAATTGGCAA ATTGGTAGAT CAGGATTGGG	8580
AAGAAAATTT TTAATAATAA TACTAACTTC TCTCGTAAAC ACTTTGTCTT ATACATACTT	8640
CTCTTTCTAT TCTGATTTAT CTAAACCAAA GAGTTTCAGA CCATAGTTTT TCAAACCTAG	8700
CGGAGGTTTA TTAGATTTTG AAGTAGTATG CCAACACGCA CATGTACGAC AATAATAGCT	8760
TCTAACTAAA CCTCCGTTAT CATATTGAAC CGCATGGTCA GCTTTTCTT TAGTTTCATA	8820
TTGAATTTTG GAACGATTAG CTGCGGGACA GTAAATTCCA CTATTAGATT TCGCTTGTCT	8880
CTCCCTACGT TTTGAAAAAT AATTCATATT CTAACCTCTA TCAAGCTTGA TAGACGATTT	8940
GTCCCTTACA GATGGTATAT TTAACCTGCC CTTTTAAGGT TTCACCGATG AATGGTGAAT	9000
TAGCTGCTTT GGAAGCAAAA TGGGAGTCCA CAAAGCGGTC AGCCTTGGCA TCAAAAATAG	9060
TGATATCTGC TGGACCATTC TCAGCCAAGT AACCTGCTTC AAAGTTGTAA AGCTTGGCTG	9120
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AGGTCAAGCT GAGAGACAGG GATGTTTCTA AGCCAGTCAT ACCAGATGGC GCTTTGGTAA	9240
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TGACACCTGA TTTGAGACCT TCGATAACGG CACGACGGTC TGATTCCAAA CGAAGCGGTG	9360
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GTGGCGCTAC TTCTGCTGTG ACTTCTGCAC CTAACCCCTG AGCAAACCTC ACTACTTTAA	9480
CACTTTCTTC CTTAGACAAA TGCTGGATGT GAACATGGGC TTTAGTTGCA TAGGCAATCA	9540
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CGACCAAGCC AGGAGCAACC ACAAGACCAG TAGCATCAAT CGTTTCTGCT CTTCTTCCG	10080
TGATCTCAGA CGCAATTTTG ATAATTTTCC CATCTTGAAC TAAGACATCA CAACTTGAT	10140
CCAAACCAGA CTTGGGATCC ATTACACGAC CATTTTTGAT TAGTAGCATC TGCTTTCTCC	10200



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CTCTTTTCTT GGACTTATAC TTCTGAGAAC ATTTCCCTTA TGCCAGCGAT TATTTCCACC	2100
GTTATTCTGG TCTTTGGTGC TCTTCTTTTA GCCTTGCCCA TAGGGATTTT TGCTGGTTTT	2160
TATCTTGTGG AATATACAAA AAAAGATTCC CTTTGTGTTA AAATCATGCG ATTGGCCTCA	2220
GATACCTTAT CTGGGATTCC TTCCATTGTT TTTGGTCTGT TTGGCATGCT CTTCTTTGTA	2280
GTCTTCTTAG GTTTTCAATA CTCTCTGTTA TCAGGAATCT TAACCTCAGT TATCATGGTG	2340
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GATGGTTTTT CAACAGCCTA ATCCCTTTGC CATGTCTATC TATGATAACG TGGCTTATGG	3060
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ACGGTTCCGA TAAGGAAGGA AAAACCTATG AGAAATCAAT TTGACTTAGA ATTGCATGAA	3540
TTAGAACAAT CCTTTTTAGG ACTAGGGCAA CTTGTCTTG AAACAGCTTC AAAAGCCTTA	3600
CTGGCCTTAG CCTCCAAAGA CAAGGAGATG GCAGAGCTAA TTATCAATAA GGATCATGCT	3660
ATCAACCAAG GTCAAAGCGC TATCGAATTG ACCTGTGCCC GTTGTGTTGGC CTTGCAGCAG	3720
CCACAAGTGT CTGACCTTCG ATTTGTGATT AGCATCATGT CTTCTTGTTT AGACCTTGAA	3780

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CGTATGGGAG ACCATATGGC AGGCATTGCC AAAGCTGTTT TGCAACTAAA AGAAAATCAA	3840
CTAGCCCCCTG ACGAAGAACA GTTACACCAA ATGGGTAAAT TATCCCTCAG CATGCTAGCC	3900
GATTATTGG TTGCCTTTCC TTTGCACCAA GCCTCAAAG CTATTAGTAT TGCTCAAAAA	3960
GATGAACAGA TTGACCAATA TTATTATGCC TTATCAAAGG AAATCATTGG ACTTATGAAA	4020
GACCAAGAAA CCTCAATTCC CAATGGAAC CTATACCTTT ATATCATAGG GCATCTGGAA	4080
CGCTCGCTGA TTACATTGCT AACATTGTG AACGCCTAGT CTACCTAGAA ACAGGAGAAC	4140
TAGTGGATT GAATTAATTC AACTAATCCT TAAAAGAGAA GAGTACGATT AAGTACTCTT	4200
TTTTATGGTT GTAAAAAGT TCATTTGACC AATTTAAGCA GTGTAGATAG TGAGGAGTTG	4260
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GGCTGTCTGG CTTATAATCT CTACCTCTTT TTAAGCAGC TAGCTGGTGA TGAAGTAAAG	4440
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ACTGCTAGAC GACATATTCT CAAATTCTCA AGTCTATACG CCTATTCAA ACAGTTTCAA	4560
GCCTTATTTG ATACAATCTG CCAGATAAAT CTGATACTCC CTGTTCCATA TAGAGCTAGA	4620
GGGCAGGGGA AAACATGCCT AACAGAATAA GTCACCTTAT TTTAAAAATC GAGCATCAAA	4680
CCAAGGGAGG AGTCTGCCCT TTTTAGGAA AAAATCAAGA CAAATCTCCT CAATTATGTC	4740
TCGAACATCA GAAATTAAGC AAAATCACCA GAAGGACAGT ATTTCAACTA GCTTTTCTGG	4800
TAATTTTGA ACTGTGTAGT TCGTTAGTGC CAGATATGAA TAATTTGGGA TGATAAATCT	4860
TTCTTCTCA GGTAGCCTAT CATAATACTC TTCAAAAATC TTATCAAAAA CACTCTCTTT	4920
CTTTTGGGCG ATAGTTTCAT CTTCGTATGT AGGAGTCCTC ATCAAGAAAT ACTTCAATTC	4980
TAGGTATTCC TTATCCAAC CTATATAACT TGGCATCAAC TTGTAATCTT CAACCCCAA	5040
ACGTTACGA ATATATTTTA ACTTTGTTAG TATTGGTCTG GATTCTCCAT TTTCAATTCT	5100
AATTAATTGA CGGATACTTA ATTCAGACTC ATCACCACAA AATTCTGAAC GACTGATTCT	5160
TTTAGCCAAA CGTAATCTTT TAATTTTTC GCCAAACTCT CGCAACCTAC AAGAACTTCC	5220
TGAGTTGTTT ACCTCTATTA TAAGCATATA CTGAATCAAA CTATCTATCA GATTTCTTCT	5280
CACTTTAACT AAAGACTAAG AGTTTATCCC TTCGTCTCGG TTTTGTGTA TTTTCCACC	5340
ATACCCAGT AATGCAAGTG CAAAATCCCC TAGAATATGA TAGAATAAGA GAAAGAACTC	5400
TATCAAGGAG GAAATCATGG AAAACAAAC CGTCGCCGTC TTGGGGCCTG GTTCTTGGGG	5460
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TAAACGATTA TCAACCATTG TTGAAGAAGA AATTCCTGAA CATCTCCGTA GTGATATCGT	5820
CGTTGTTTCA GGGCCTAGTC ATGCAGAAGA GACCATTGTG CGTGACCTAA CTTTAATAAC	5880
TGCTGCTTCT AAAGATTTAC AAACAGCTCA ATACGTTTCA AAGCTATTTA GTAATCACTA	5940
CTTCCGACTT TATACCAATA CGGATGTTAT CGGGGTTGAA ACTGCTGGTG CTCTTAAAAA	6000
TATTATTGCT GTCGGTGCTG GAGCTTTACA TGGTCTTGGA TTTGGTGATA ATGCTAAGGC	6060
AGCCATCATC GCTCGAGGTT TAGCAGAAAT CACCCGCCTA GGGGTAGCAC TCGGGGCCAG	6120
TCCATTGACC TATAGCGGCT TATCTGGTGT GGGAGATTG ATCGTAACGG GAACTTCCAT	6180
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AGCCCAAGAA CTTGGAGTCT ATATGCCCAT TACACAGGCT ATTTACCAAG TTATTTATCA	6360
CGGAACCAAT ATCAAAGATG CCATTTATGA CATCATGAAC AATGAATTTA AAGCAGAAAA	6420
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CATCCCTGCT GCTGGACTAG GAACTCGATT TTTACCAGCA ACCAAGGCCC TTGCCAAAGA	6540
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TGCTCGTGAG TTCAAAGGGG CTCGTTACGA TGTCGGAGAC AAGTTTGGCT TCATGAAAAC	7260
ATCCATCGAC TACGCCCTCA AACACCCACA AGTCAAAGAT GATTTGAAGA ATTACCTCAT	7320

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CCAACCTTGA AAAGAATTGA CTGAGAAGGA ATAACAAAAT CATTTATATA AAGATTAGCC	7380
ACACATAAAT TAAGTAAATT CTCTACTTGA ATCTACCTAT TTAATAAAAA CTAATGAAAA	7440
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CAAAAAAGCA CCGAATCGGT GCGCACTTTT TCAAGTTGTG TACCGACAAA GCCTTATTTT	7560
AACTTTGCTA TGTGTTTCT AATGGTTCCA AAATAATAAA TATTTTAAA TTGACTTAA	7620
CTGTTGGAGT AGTCATGGTT AAATTAAATC AACCGAGCCG AACATAAGTT GTTTAATTTT	7680
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GTAATTGCGG AACTATCAA AGAAAAAGAT TATGGAGAAC AAATTTGTAG AATTTATCGA	7800
AAACAATAAA AAAGTAATCA TTTCATCAGT TGCAGTTGGT GTTGTATTGG TATTAGGGTT	7860
TGGATGGTAT TCATATAACC AACACAAGC AGAACAACAA GCAAAAATTG TACAATTAGA	7920
AAAAGATAGC AAATCAGACA AAGAACAAGT TGATAAACTA TTTGAATCAT TTGATGCATC	7980
TTCAGATGAA TCTATTTCTA AATTAAAAGA ACTATCTGAA ACTTCACTTA AAACCGATGC	8040
AGGTAAAGAC TATCTTAATA ACAAAGTCAA AGAATCATCT AAAGCAATTG TAGATTTTCA	8100
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TGAAACTTTT AAACAAGAGA ATTTGGAAGA AACTCTTAAA TCTCTAAATG ATCTTGTTGA	8280
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AAAATCAAAT TCAAACCAGC TCAGCATCGC CTTACCGTAG GTATGGTTAC TGACTTCGTC	8880
AGTTTCATCT ACAACCTCAA AACCATGTTT TGAGCTGACT TCGTCAGTTC TATCTACAAC	8940
CTCAAAGCAG TGCTTTGAGC AACCTGCGGC TAGCTTCCTA GTTTGCTCTT TGATTTTCAT	9000
TGAGTATTAG TCGTCACAAT CCCATTCCCT TGTAGAAAAG CAAAATGGCG AGTCCTACGA	9060
ACAAGACTAC CGCTCCTAAT CTCTGGCTGG TGTATACAT CCGTTTTTCT CCTCTAACTG	9120

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TTCCTGGAAT CAGAACACTT CCAATAATGT TAACCACAAA AAGTGTGAGA TAGGATTGCC 9240  
CTAGCTGTTG GATATAAGGA TTGCGAGTTG CATAGCGAAG AACAAATAATC GCGGCAAATA 9300  
GCCCATAAAG AGAGGTAGAG GCGCCTGCTG CTAAGGATTT AGGACTAAAT AAAAAACAA 9360  
AGAGATTGCC CATCATTCCT GATAAAGAT AGAGAAAGAA AAAGTGTCTTA GAACCGAAAA 9420  
TCTCCTCTAC CTGCCTTCCA AGATAATAAA GTGAAAGCAT ATTAACAATG AAATGTTCCC 9480  
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AAATCTCCCT GTAGCTCCAG TAAGGCAAAG AAAGTTTTTA CCAACTGTTG CGGATCATAG 9960  
ACCACAAAGT CCATGCGCCC CTTGGGATAA GTTTTGGGTA TTAACCTT CTTGCCGTCC 10020  
TTCAGCGCCT GCTCAATCAG TTCCTGCGTT TGAACTCAT GAGAAAAAGA GAGGTAGGTT 10080  
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TCTATAGCCT GTTTTGTCTC TTGAGATATA GCCTTCATTT CATGCAAGAC TTGCTGCGT 10200  
AATTCGATT TCATAGACAA GCCCTCTATT CTGCTGCCTT CTTTTTCAGG AAAGTAGACA 10260  
CCGCAGCCAC CCCAATAGCT AAGACTTCTT CCTTAGGACT CATTTGAGGG TGATGAAGAG 10320  
CGTAGGGACT ATCGATACCT AGCCAAAACA TCACGCCATC AACCTTTGAA AGGAGATAAC 10380  
CAAAGTCCTC GCCTGTCATA GCAGGTTCTGA TATCAATCAA CTCGATTCCG TCTTTTTCGT 10440  
CAAAGAAGTC CATCAGTTCA CGCGCAAGG CTGGATTGTT CTCAACAGGT AGGTATCCAC 10500  
CTTGTTTGAG TTCCACTTCG ACTTCCATAT CAAAGGCAGC TGCAACCCCT TCTGCAACTG 10560  
TTTTTACCCT CTTTTCGACC AAGAGACTCA TGTCTGTGT CAAGGCACGA ATAGTTCCAT 10620  
GTAAAAAAGC TGTGTCTGTG ATGACATTGT TGGTGGTTCC AGCTTGAAAA ACGCCGAAGG 10680  
TCACCACTGC TCCCTCGATT GGGTTGACAT TCGCGCTAAC AACTGACTGC ACTTGGGTCA 10740  
CAAAGTAACT AGCCGCCACC AAGCGTCAT TGGCTTCATG AGGAAAAGCT GCGTGGCCAC 10800  
CTTTGCCTTT GAAACGGATC TTCACCTCGC AAGTTCCTGC AAAGAGTGTA TGAGTATTAG 10860

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TCGCAATCTG GCCGACTTTC AAATCTGGAC GAACATGGAG ACCATAGAAT TGATCTGGCA	10920
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CAGGCTGAAA TAGAAAGAGC AGATTATTCT TGGGTGCTC CTCAAGGGCG CGCTCAAGAC	11040
AGCCTAAGGC AATGGTCATA TGAAAATCAT GGACACAGGC ATGCATGCGA CCTTGGTGT	11100
GAGAAGCAAA AGGTAGACCT GTTTGTTTGA CGATAGGCAG GCCATCAATA TCTGTCCGCC	11160
AACCAATGGT TCGCTCCGGC TGAATCCCT GCAGGTAGAC CAAAATCCCT GTCCGCCAAG	11220
TACGAATTTG AACAAAATCC TTGCCCGTAG TCAATTTCTC AATCACATCC AGCAAATAAG	11280
CCTGAGTCTT GAACTCCTCC AAGCCAATCT CTGGAATCTG GTGTAAATCT CGTCTAGTCT	11340
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CCGATTTTCA CACCGATATT GATAACAGAT CCCATCATGA TAACAGCATT GTCACCAATT	11820
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AGCAAAGGAA CTGCAGAATT ACGAGCATCT TGCTCGACAA CATAATCTTG ATTTTCTACC	11940
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ACAACAGAGC TAGGCACAGC AGTTGCGAGT TGCCCTCAA AGGTTACTTT GAACTGGTT	12060
TTCTTTTTCAG CATTGGCGAT AAATTGGATA ATTTCTTGAG CGTTCATTTT TGTCAGAGTC	12120
ATAGGTG	12127

## (2) INFORMATION FOR SEQ ID NO: 149:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 12566 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 149:

CCATCCTTCT GTTGATGTGA CAGGAATGAT GATAAATCAA CCAGTAGCTA GTCGCGAAGA	60
GGTGACAGAG GCTTTGAGTC ACTTGCGCGT AGAGCACAAAT AGTCTCATTG CTCGTCGAAT	120

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CGTTGAGCCA AATGAAGCTG GAGAAACACG CTTTACCTAT GCCACTTATG GTGAGGGAAA	180
GCTTCCAGAA GGTCTGACCA TTTCTCTCAA GGAGAGTGCA GAAACGAGTG ATTTATTAGG	240
GTCTTACTTG ATTGTATCAG GAAGTTTGGG TGGAGTGAGC TTACAGACCA CCTTGAAAGA	300
GCTTGGTTAT CAAGGCTTTG TTTTGAATGG AGAAGATCCA TTTTCGATAG TCTTACTATT	360
GACGGCCACC CCTATGGTGC TACTGAGTTT AGCTATTTTT CTGCTGACCT TTATGAGTCT	420
GACCCTGATT TATCGGATCA AATCCCTTCG TCAGGCAGGG ATTCGGTTAA TAGCTGGTGA	480
GAGCTTGTTT GGAGTTGCTC TCAGACCAGT GTTAGAAGAT GTGAGACAGC TTATCTGCTC	540
AGTGCTGGTA TCCAGTCTTT TGGGATTGGG GATTCTCTGG TATCAAGGTG CCTTGTTTAT	600
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TTCTACCTTA CTAAGTGTCG TCTATCTACT TGGTTTACAG GAAAATAGTC TGGTGGATCT	720
ATTGAAAGGG AAACCTCCCTC TCAAACGTAT GATGACATTG ATGATGGTGG GGCAACTCTT	780
AGCTGTATTG GTGGTCGGAT CGAGTGGGAC AGCTCTCCTA CCCCCTACC GTGAAATGCA	840
GGAAATGGAG AGAGCTAGCA ATAAATGGAG CCAGTCTCTA GACCGTTACC GTCTATCCTT	900
TGGTTGGTCT AGTGCATTTG CCGATGAAGA AGGAACGCGT AAGGATAATC GTGAGTGGCA	960
GACATTTACT GAAGAACGGT TAGCCAATAC AGACTCTTTT TATATTATGA GCAATGTGA	1020
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AAGCCAGCTA TTTTGTGCA AGGTACTAAA TGACAAACGG GTGGAGTTTT ACTCTCTCCT	1620
TATTGGGACG ATTTTGACCC TGTCTACGGC TATCTTGTTA TTTGATTCCA TGAATCTTCT	1680
CTATTTTGAG CAGTTCAGAC GGGAACTTAT GATTAAACGT CTTGCTGGTA TGACAACTTA	1740
TGAGCTTCAT GGCAAGTATT TACTGGCGCA AGGAGGAGTT CTCTTGCTTG GCCTAGTCCT	1800
ATCTAGTATT TTGACAAGAG ATGGTTTGAT TAGCGCTCTA GTTGTAGCTT TGTTTACGCT	1860

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TAACGCCCTC TTGATTTTAG TAAGGCAGGA CAAAAAAGAA GAAGCTGGTA GCATGGCAGT	1920
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CGATTTTCTC TGGTTTGAAT CTCAAGCTGG AGAAGGGCAA GGTATTATGCC TTAATCGGAA	2040
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GTGGAAGGGT TCTCTATCAG GGGAAAGATT TAAAAACCAT TCCCACTCGT GAGTATTTTC	2160
GAGACCAGAT GGGCTATCTC TTTCAAAATT TCGGCCTCTT AGAAAACCAA TCAATCAAAG	2220
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AAGTGGGGGC TTTAGAAAAA GTTAATCTAG GGTATTTGGA TTAGAACAA AAAATCTATA	2340
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CCTTGATTTT GGCAGATGAA CCAACAGCAG CTCTTGATCC TGAAAATCA GAGGAGGTTA	2460
TGAATCTCTT GGTGGATTG AAAGATGAAA ATCGAATTAT CATCATGCG ACCCATAATC	2520
CCCTAGTCTG GAATAAGGCT GATGAAATCA TTGATATGAG GAAACTTGCT CATGTGTGAA	2580
AAAATCCGTA TTCGCAGGGT ATCTGATTAT CCTAGTGCCA GAGGTGGTTT AGAAGATATC	2640
CTCATCATGG AAAATATGAC CAATCATCTC CTTTGGTTT AAATCCGAGT GCATGGCTAT	2700
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CCACCGTTTG GTGCCAATTT TGGCAGATAC CCTGCGTGAT TTTGATAATG TGACCGTAGT	3300
TAACGAAGAT ATTCTCAAGG TTGATTTGGC GCAACATATC CAGAATTTTA AAAATCCTGA	3360
CCTGCCAATC AAGGTAGTGG CTAATTTGCC TTAATACATC ACGACGCCTA TTCTCATGCA	3420
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GTATTACATG ACAGCCAAGG TTGCCTTTAT CGTGCCCTCGT ACGGTCTTTG TGCCAGCGCC	3600
AAATGTGGAT TCAGCCATCT TGAAAATGGT GCGTCGTCCA GAGCCAGCCG TAGCAGTAGA	3660



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AGATGAGAAC TTTTCTTTA AGGTTTCCAA GGCTAGTTTT ACCCATCGCC GCAAGACCTT	3720
GTGGAATAAC TTGACAGGTT ACTTTGGTAA GACTGAAGAG GTCAAGGACA AGCTGACCAA	3780
GGCTTTGGAC CAGGCAGGCT TGTCACCAAG TGTGCGTGGG GAAGCTCTCA GCTTGGCAGA	3840
ATTTGCCGGT CTAGCAGACG CACTTAAAGG GCAAGGACTC TAAGATGCAG GGACAAATCA	3900
TTAAAGCCTT GGCAGGTTTC TACTATGTGG AGAGTGATGG CCAGGTTTAT CAAACACGGC	3960
<hr/>	
CGCGTGGGAA TTTCGGTAAA AAAGGCCATA CCCCTTATGT TGGGGACTGG GTAGATTTCT	4020
CTGCCGAGGA AAATTCAGAA GGCTATATCC TCAAAATTCA CGAACGGAAA AACAGTCTGG	4080
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ATACACCAGG ATTTTCATCC TTGGACTATG AAGTATCAAG GGCTGAAGAC CTCAATCAGG	4560
CTTTCCGAGA GATTGCTACT GTTAGCCGAG ATTGTAAGTT CCGTACTTGT ACCCATACCC	4620
ATGAGCCGTC TTGTGCCGTC AAACCAGCTG TTGAAGAGGG TGTATTGCA ACCTCCGTT	4680
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ATCCATGTAG AAGCAACGCC TCATATTCAT GCGGCCCTCC AAAAAATTCG TTTACTCGGA	5100
GTTAAGCCTT CAGTCGTTAT CAATCCTGGC ACATCAGTTG AAGCCATCAA GCACGTCCTT	5160
CATCTAGTTG ACCAAGTTTT AGTCATGACG GTTAATCCAG GTTTTGGTGG GCAAGCCTTT	5220
CTGCCAGAAA CCATGGATAA GGTCCGTGAG TTGGTTGCTC TTCGTGAGGA AAAAGGTTTG	5280
AACTTTGAAA TCGAAGTGA TGGTGGGATT GATGACCAAA CTATTGCTCA AGCCAAAGAA	5340
GCCGGTGCGA CTGTTTTTGT AGCAGGTTCC TATGCTTTA AGGGAGAACT CAATGAGCGA	5400

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GTACAACTC TCAGAAAACA ACTGGACTAG GGTTCAGTT TTTGCAGGCG GAAACCGCGG	5460
TCATTATCGG ACAGATTTTG ATGCTTTTGT TGGGGTGGAT CGAGGCTCGC TCTGGGTCTT	5520
GGAAGAAGAC TTACCTCTTG CTCTAGCAGT CGGAGATTTT GATTCTGTGA CGGAAGAAGA	5580
GCGACAGGTG ATTCAAAAAG GTGCCCAGTA TTTTGTCCAA GCACGACCAG AAAAGGATGA	5640
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TATTTTCGGT GCCTTGGGTG GCCGTATTGA CCATATGTTG GCCAATGTCT TTCTGCCTAG	5760
CAATCCTAAG TTGGCACCCCT ATATGCATCA AATAGAAATT GAGGATGGGC AAAACTTGAT	5820
TACTTATTGT CCAGAAGGAA TCAGTCAGCT AGAACCTCGT TCAGACTACG ACTATCTAGC	5880
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TCGAGGAAAA ACTAGAAAAG ACCTTGCAGA CACGCTTACA GGCTTCCTTT GAGACAGTTT	6480
CTAAACAAC TGGAGTCTGTC AATCGTGGCC TTGGAGAAAT GCAGACAGTT GCCCGTGATG	6540
TCGGAGCTCT TAACAAGGTT CTCTCTGGAA CCAAGACGCG AGGGATTCTG GGAGAATTGC	6600
AAC TGGGGCA AATTATTGAA GACATCATGA CACCTGCCCC GTACGAACGA GAATACGCAA	6660
CGGTTGAAAA CTCTAGTGAA CGAGTGGAGT ATGCCATCAA GTTACCCGGA CAAGGCGACC	6720
AAGAATACGT CTATCTGCCA ATTGACTCTA AGTTTCCACT GGCAGATTAT TACCGCTTUG	6780
AAGAAGCCTA TGAGACAGGT GACAAGGATG AGATTGAACG CTGTCGTAAG TCACTCCTAG	6840
CAAGCGTCAA GCGCTTTGCT AGGGATATTA GGAACAAGTA CATAGCACCA CCTCGGACGA	6900
CCAATTTTGG AGTTTGTGTT GTTCCGACAG AAGGTCTCTA CTCAGAAATC GTCCGCAATC	6960
CGGTCTTCTT TGATGATTG AGACGGGAAG AACAGATTAT TGTTCAGGA CCAAGTACCC	7020
TATCAGCCCT TCTTAACTCC CTATCAGTTG GTTTCAAGAC CCTTAATATC CAAAAGAGTG	7080
CCGACCATAT CAGCAAGACT CTTGCCAGTG TCAAGACCGA GTTTGGCAAG TTTGGTGGTA	7140
TTCTGGTCAA GGCACAAAAA CATCTCCAAC ATGCCTCTGG CAATATTGAT GAATTATTAA	7200

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ACCGTCGTAC CATAGCTATC GAGCGGACGC TCCGTCACAT TGAGTTGTCA GAAGGTGAGC	7260
CTGCGCTTGA TCTACTCCAT TTTCAAGAAA ATGAGGAAGA ATATGAAGAT TAGTCACATG	7320
AAAAAAGATG AGTTATTTGA AGGCTTTTAC CTAATCAAAT CAGCTGACCT GAGGCAAAC	7380
CGAGCTGGGA AAAACTACCT AGCCTTTACC TTCCAAGATG ATAGTGGCGA GATTGATGGG	7440
AAGCTCTGGG ATGCCCAACC TCATAACATT GAGGCCTTTA CCGCAGGTAA GGTGTGCCAC	7500
ATGAAAGGAC GCCGAGAAGT TTATAACAAT ACCCCTCAAG TCAATCAAAT TACTCTCCGC	7560
CTGCCTCAAG CTGGTGAACC CAATGACCCA GCTGATTTC AAGTCAAGTC ACCAGTTGAT	7620
GTCAAGGAAA TTCGTGACTA CATGTCGCAA ATGATTTTCA AAATTGAAAA TCCTGTCTGG	7680
CAACGGATTG TCCGAAATCT CTACACCAAG TATGATAAGG AATTCTACTC CTATCCAGCT	7740
GCCAAGACCA ACCACCATGC CTTTGAAACG GGCTTGGCCT ATCATACGGC GACCATGGTG	7800
CGTTTGGCAG ACGCTATTAG CGAAGTTTAT CCTCAGCTCA ATAAGAGCCT GCTCTATGCG	7860
GGGATTATGT TGCATGACTT AGCTAAGGTC ATCGAGTTGA CGGGGCCAGA CCAGACAGAG	7920
TACACAGTGC GAGGTAATCT TCTTGGACAT ATCGCTCTCA TTGATAGCGA AATTACCAAG	7980
ACAGTTATGG AACTCGGCAT CGATGATACC AAGGAAGAAG TCGTTTGTCT TCGTCATGTC	8040
ATCCTCAGTC ACCACGGCTT GCTTGAGTAT GGAAGCCCAG TCCGTCCACG CATTATGGAA	8100
GCAGAGATTA TCCATATGAT TGACAATCTG GATGCAAGCA TGATGATGAT GTCAACAGCT	8160
CTTGCTTTGG TGGATAAAGG AGAGATGACC AATAAAATCT TCGCTATGGA TAATCGTTCC	8220
TTCTATAAAC CAGATTTAGA TTAATAATTT AAGAAAAATG AGCATTTTTT AGGATAAGAA	8280
TGTTCCGTTTT TTTATGTGAA TATGGTATAA TAAGTAAAAG ACAAAAATGA ATACTCTTCG	8340
AAAATCTCTT CAAACTAGGG TAGTATCGCC TTGTCGTATG TATATATGCA GGTATATTAC	8400
AGGGTTTGTC AGTTCTATTG ACAATCTCAA AACAGTGTTT TGAACCACCA GCGACCAGCT	8460
TTCTAGTTTG CTTTTTGATT TTTTGAATAA AAATGGAATA GGAAATAGAA ATGAAATTAA	8520
GAAGAAGTGA TCGGATGGTT GTCATTTCCA ACTATTTGAT TAATAATCCT TATAAACTAA	8580
CTAGTCTCAA TACTTTTGCT GAAAAGTATG AGTCTGCTAA ATCATCCATC TCAGAAGATA	8640
TCGTCAATTAT CAAACGCGCC TTTGAGGAAA TTGAAATCGG TCATATCCAG ACAGTGA	8700
GGGCTGGCGG AGGTGTCATC TTCACACCGT CTATTTGAG TCAGGATGCT AAGGAAATGG	8760
TTGAAGACTT GCGTACCAAG TTGTCAGAAA GTGACCGTAT CTTGCCAGGT GGTATATCT	8820
ATCTGTCTGA TTTGCTTAGC ACACCAGCCA TCTTGAAAAA TATTGGTCGT ATTATTGCCA	8880
AAAGCTTTAT GGACCAAAAA ATTGACGCGG TTATGACCGT AGCAACTAAG GGTGTGCCAC	8940

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TTGCAAATGC	AGTTGCCAAT	GTCCTCAATG	TCTCTTTTGT	CATTGTGCGC	CGTGACCTGA	9000
AAATTACCGA	AGGTTCAACT	GTTAGCGTCA	ACTATGTTTC	AGGTTCAAGT	GGTGACCGTA	9060
TCGAGAAAAT	GTTCTTTTCA	AAACGTAGTC	TTAAGGCAGG	CAGCCGTGTC	TTGATTGTGG	9120
ATGACTTCTT	GAAAGGTGGC	GGAACGGTCA	ATGGTATGAT	TAGTCTCTTG	CGCGAGTTCC	9180
ACTCAGAACT	GGCAGGTGTA	GCGGTCTTTG	CGGACAATGC	CCAAGAAGAA	CGTGAAAAGC	9240
AGTTTGACTA	CAAGTCACTC	TTGAAGGTAA	CCAATATTGA	TGTCAAGAAC	CAAGCCATCG	9300
ATGTTGAGGT	TGGCAATATC	TTTGACGAAG	ATAAATAAGA	GATAGAACTA	AAGGTTGGAA	9360
CGATTGTCCC	AGCCTTTCTT	TGCAAACAGA	ATAGAAGGAA	GCTTATGAAA	ACACCATTTA	9420
TCAATAGAGA	AGAGTTAGAA	GCGATTGTTG	CCGAGTTCCC	GACTCCCTTT	CAC TTGTATG	9480
ATGAGAAGGG	GATTCGTGAG	AAGGCAAGAG	CCGTCAACCA	AGCTTTTTCG	TGGAACAAGG	9540
GCTTTAAGGA	ATATTTTGCA	GTTAAGGCTA	CTCCAACCTC	AGCTATTTTG	AAAATTCTCC	9600
AAGAAGAAGG	TTGTGGTGTG	GACTGTCTCTA	GTTATGTAGA	GCTTTTGATG	AGCCATAAAC	9660
TGGACTTTCT	GGGTTCTGAG	ATTATGTTCT	CTTCCAACAA	CACGCCAGAC	AAGGAATACG	9720
CCTATGCACG	TGAAATGGGT	GCGACCATTA	ACTTGGATGC	CTTTGAAGAT	ATTGAACATC	9780
TGGAGAGAGT	AGCAGGCATT	CCAGAAATCA	TCTCTTGTCG	TTATAATCCT	GGAGGCGTTT	9840
TTGAACTGGG	GACAGACATT	ATGGACAATC	CTGGGGAGGC	TAAGTTTGGC	ATGACCAAGG	9900
ACCAGCTCTT	TGAAGCCTTT	GCTATCTTGA	AGGAAAAAGG	AGCCAAGACT	TTTGGGATTC	9960
ACTCCTTCCT	AGCGTCCAAT	ACCGTGACCC	ATCTCTATTA	TCCAGAGTTG	GCTCGTCAGC	10020
TCTTTGAACT	GGCTGTTGAA	ATCAAGGAAA	AGTTGGGCAT	TTGCTAGAC	TTTATCAATC	10080
TTTCTGGCGG	TATTGGTGTT	AATTATCATC	CAGACCAGGA	GCCGAACGAT	ATCGCCTTGA	10140
TTGGTGAGGG	AGTTCGTAAG	GTGTATGAAG	AGGTTCTTAC	GTCAGCAGGT	CTTGGTCAGG	10200
TCAAGATTTT	CACCGAATTG	GGTCGTTTTA	TGCTGGCACC	TCACGGTGCT	CTAGTCACAA	10260
GAGTCACTCA	TAAGAAGGAA	ACCTACCGTA	CCTATCTAGG	TGTGGATGCC	TCAGCAGTCA	10320
ACCTCATGCG	TCCAGCTATG	TACGGAGCTT	ACCATCATAT	TAGCAACGTG	ACCCATCCAG	10380
ATGGACCAGC	TGAAGTGGTA	GATGTGGTCG	GTTCACTCTG	TGAAAACAAT	GATAAATTTG	10440
CAGTTAATCG	CGAACTGCCT	CATACAGAAA	TCGGTGATTT	GCTGGTCATT	CATGATACAG	10500
GTGCCACCGG	ATTTTCAATG	GGCTACCAGT	ATAATGCCAA	ATTACGTTCT	GCGGAAATCC	10560
TCTATACCGA	AGAAGGTAAA	GCCCGTCAAA	TCCGCCGTGC	AGAGCGCCCT	GAGGACTATT	10620
TTGCAACCTT	ATATGGCTTC	GATTTTGAAG	AATAATCTGA	TAATAGATTG	AAAATGAAAT	10680
TGAAAAACAG	ATTGCTTTCT	AAAAAATAGG	CAAAAATCTT	GTTTTTCCTT	CAAGTCGTGA	10740

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TATAATAAAA CTATAAACG TTTTCAAGGA AGGTAACGAT ATGTCTGAAG AAACAATTGA	10800
TTATGGACAA GTGACAGGAA TGGTGCATTC GACAGAAAGC TTTGGGTCAG TAGATGGGCC	10860
TGGTATTCGC TTTATTGTCT TTTTGCAGGG CTGTCACATG CGTTGCCAGT ATTGCCACAA	10920
CCCAGACACT TGGGCTATGG AGTCCAATAA GTCACGTGAA CGGACGGTAG ATGATGTCTT	10980
GACAGAGGCC TTGCGCTACC GTGGTTTCTG GGGAAATAAG GGTGGGATTA CAGTCAGTGG	11040
AGGAGAAGCT CTCTTGCAGA TTGATTTCTT GATTGCTCTC TTCACCAAGG CTAAGGAACA	11100
AGGAATCCAC TGTACCTTGG ACACCTGTGC TCTTCCTTTC CGTAATAAAC CACGTTACCT	11160
TGAGAAGTTT GACAACTCA TGGCTGTCAC TGACTTGGTT CTTTGGATA TCAAGGAAAT	11220
CAACGAAGAA CAGCACAAGA TTGTCACTAG CCAAACCAAT AAAAAATATCT TGGCTTGTGC	11280
CCAGTATCTA TCAGATATTG GAAAACCTGT CTGGATTCCG CACGTGCTAG TTCCAGGATT	11340
GACAGACAGA GATGATGACT TGATTGAACT TGGTAAGTTC GTCAAGACCC TCAAAAATGT	11400
TGATAAGTTT GAAATTCTAC CTTATCACAC CATGGGTGAG TTCAAGTGGC GTGAACTTGG	11460
AATTCCATAT TCCCTCGAAG GAGTCAAACC ACCAACAGCA GATCGCGTCA AGAACGCTAA	11520
ACAACTCATG GATACCGAAA GTTATCAAGA TTATATGAAA CGTGTACATG GATAGAAAAG	11580
AAGCCTGATG GAAACATCGG GCTTTTGA CTGAAAAAGA CTTAGCAAAT CAGCTAAGCC	11640
TTTTTCTTCT TATCTCGAAC GTTGTTTTCC AGCGTTGCGA TTTTGTGTT TTTTCTTGCT	11700
TGTGATAGCA GTTGGTTGTT CAGGGGTAAC GTCTTTTCGT CCACTTGGTT TAGAGAAAGC	11760
ACTTGCTTTT GGTGGGTCTT TGGCTAGTTC TTCACGGACT TTTTGGCGAA GTTTGGACG	11820
AACGATATAG TTGACGATAA ACTGTTGGAG AATCATCATG AAACCACCGA CAACCCAGTA	11880
AAGTGTGACA CTAGCTGGTG AGAAGAGGGA GAAGACGACG ATCATGAGTG GGCTCATGTA	11940
AATCATTTTC TTGATTTGTT CTCTTTCAT TTCATCTTCT ACTCCGTGAA GTGAAAGGAG	12000
CGATTGAAGA TAGTAAAGGA CACCAGCACA GGCAACCAAA ATCATACTTG GAGAACCCTAG	12060
AGGAATGCCT AGGTAGCTTG CTTGAGCAAC CCCTTCAGTA TGTTGGGCAG CAAAGTAGAT	12120
AGCAGAGAAG AAAGGCATTT GAAGGAGGAT AGGGAAACAT CCTACACCGC CAAACATGCT	12180
GATACCGTGC TCTTTTGTAG CAGCAAAGAG AGCTTGTTGG GCTTCGAGTT TTTCTTCTTG	12240
AGTAGTCGCT TCTTTGAGAC GCGTTTGGTG TGGCTCAAGG ACGTGCTTGA GGGCGTTCAT	12300
CTTTTCAGAG TGAAGCGTTG CCTTCCATGA TTGGTAGATA CCAAGTGGTA AGATAATCAA	12360
GCGTACGATA ATGGTTACGA TAATGATAGC GACACCAAAG CCTAGACCTT TATCAGTAGC	12420
GAAGTACTTG ATGGCTTCAG CCATAGGCGC TCCGATCGTA TTCCAAATAA ATCCTGTTGG	12480

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CTGACCTGTG GTTTTATCGA CATTGACACA GCCAGTCAAG ACAAGCAACA TAGCCACTCC	12540
CATAGCCGAG AGTGCAAAAT CGGGGT	12566

## (2) INFORMATION FOR SEQ ID NO: 150:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5238 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 150:

TGACACTCTG TAGGATTGTC GTTAATTGAT TGCTCGTACT CTCTACAATA ACCACCAAAG	60
TAAAAACGAC ATAGAAAGAT AGCATCAGCT GTAGCCATAG CGCCTTTGAC ACCTTCTGGA	120
TGATTATGAG TTACCTCTGC AGAAAGACTC GTAAGTCCTC TAGATGATGG CCATATACCA	180
GTTTTCGCAT AAAAACCACA GTCCATGATC CAAGCACATG GAGAAATACG CATAGCTGAT	240
CCATTCCCAA AGCTATTATA AGGCTCACGG TTATCGCTGT TTAGCCATGC ATTAAACCGA	300
GCACCGTAAT CAGCATTCGG ATACATTCTG CCATATTTCT TCATCGCGTC AATGAAGTCA	360
TCTTTTGTG CACCATTTCAT AATTGCTTCT GCAACAGCAC AGGTCATAAC CGTGTCATCT	420
GTA AAAAAGC AGTCCTTCCG AAATAAAGGA AAGTCCTTTG TTTTGATATT GTTCCATTCC	480
TAAACAGAAC CGACAATATC TCCAATAATT GCTCCAAGCA TCAGATTCCT CTTGTTCAT	540
TTTGATGCTT TTTATATTGG TTATCTACCA TATTTATTTT AGAAAATAAC ATCCTGTTGG	600
ATTTTAAAAA TTTTATTTT TTCAAAATAG GGTTTACCA TTTCTTTCCA CCTAGCTCTA	660
TGAAAATTGA TTGATTTTAA AGGAGATAGG CCATAATTTT CCAATGCATA ACCATCATTT	720
ACTTCAACAA CAAGTGTTCT GCCATCGCGA GTAACACCGA TATCTAGTCC ATAAGCTATT	780
GGCGCATCTT TCCAACATGA TATCGCTTCA TCAATTACAC TTGCATCAA TTGTGCATGA	840
TAATCACCTG TATAGGTCG AACATCTAAT ACGCGACCAT CTAACACAAA ACAACGCCAT	900
TCAGCTATGA ATTCTACAAC CTCCTAATC CATATAGGAT AGTCGAAAGG TAGACCAATA	960
CCTATTAAAT CATGGGTCC ATTAACAACT CTCCAGTAA AGACTTTTGA ACCAGCTTTA	1020
GGCTTAATAA ATTTTCCCCA ATTATCAGGT ATATTCACAA TCTCTCTAA AATACCAGCA	1080
TAAATCTTTC GACCATAAAA CTCTTTAAGC TCAATAGGAT AGTCATGAAC CGGAACGTTT	1140
AAGCCCATCA TTTTATAGTA TGCTCTAGTC TCCATTATAT AATCTACAAC TATATCTTCA	1200
CTTGTTAACT CTTTATTTTC AGAAAAAGAT TGATATAAAA TAACTTCTTC TCCTTGTAAG	1260
TAGGCACCTA CTTGAGCATT GTATTTATTA ATTGAAACCT CACTTGGTAA TTTACTTTGT	1320

1007

CTAATATAAA CAACCATTTC ATCACTCCTA TATCACTAGT GTTACACCAA TTTGTAAAAA	1380
ATAATAGCAA TTTTGCTCTT ATTTTTTTGA GTAAATAGCC CCCATAATAT CATCGAAATA	1440
ATCAACGGTA TTTAGGAGTA ATTCAATAAC CTGGGACTTT GTTAGTCGCA TTCCCTTCT	1500
ATCTCTAGCA TCTTCTACTA AATTTTCAAG TTTCTCTAGA TTTTATCAT CCAAGCTAAT	1560
CATTATTCTA TTTTATCGG TTGCCATTTT CATCACCTCA AGTTAATTCT ATCACAGGTG	1620
TAACACTAGT GTCAACTGGC TTTTATAATA CATTAGTTTA AAAGTGGAGA GGATTTTAA	1680
CACAGTAACT TTAATCTTT GGTATTAAAA AATTTTCACA ATATTTATAG AAATAAAATC	1740
TGTCTCAAAT CAGTTATCAA ATCTAGTATA AATTATGAGC GGCTACTCTA ATACTTTCCC	1800
TCTAAACAAG AAAAAGACTT ACACTCAAGG GTTTTCTTCC CCCCCTTCGT TATAACGTTT	1860
TGACTCTTTT ACTAGCAAAG GTATATACTC ACAAGGAACT TTGGTTGACT ATTGAATCTC	1920
TCCAACCTCT TCTTTAACAT ATCCTTCTAC ATCTTCAATC TCTACAAACA TTGGGTCTAA	1980
GTGACACAAG AAATGCCAAA CTTGATCCC TTTTTTCTG TAAAGAATCG CTTACCCGTC	2040
TTCACTTCCG AAAAAGCTTC TGTCGATTTC ATATCCGCGG CTTTCTAAGA AGTCTTTTGC	2100
TTTACGATAG TTCGTTTCTC TTGTTTCGAC ATAGGCTTTA ACTTCATGGT TGTAAACGAC	2160
ATATGCATCA ATTTTGAAT ATCCTTCGAT CACTCTATCA TTTTGAGGG ATAAATTGTA	2220
AATCTCTTTC CAAATAATGT TTACATTTTC CTCAGGATCG AACATAAATT TAGATAAAGG	2280
AACAATATTT CCGTTAAAAA TAATTTCCAT ATAATCCGGT ATGTTTTTAG GATTAATAA	2340
CTCCACTTCA AAACCATCTT CTGTTTCCAG AGTGTATCCC GGGATTTGAG CTACAAAGGC	2400
TTTCCCATCT TCTATGGAAT CAAATGCTAC TAAATCTTTA GAATAATCAT TTTGGTACAA	2460
TTCCAATATA ACCATCGATA ATCTCTCCAT TTTCAATATC AGGCTAATGT AAATAAGCAC	2520
GTCACCTGAC CAATTCAGGC TCTCTGTATC ATCTCATCAT ATTCCTACT TACTTTACGA	2580
GTCTTATACC CAGAACACAC CTTATCGACC TTCGGTCTCA CCTCGTCGCA TTGGCTGAAC	2640
ATCTACTTTT ACTTTGCTGA TGCTTCAACT CGTACAAGCA GTGATACCGC CTCAGCGTGA	2700
TGCGTCAGTG GGACTIONA GGTTCGGGGA ACCTTTTGAG GATTAACCTAC GTTCTCTAA	2760
TAACTTACA CATTCAACTT GTTCATCAT GTCCAAACCT ATGTTGAGAT TTTCTTCTAT	2820
AATTGGTAGC TTAAGGTAA TGGATTTTAG CCATTGTCCG TTAGATTGTT TTTCTTCATA	2880
AACTTGAATT TCAGAAATCA AAGCTGAAAT TAACTGCCTA CGCTCTACAT CATTATGAC	2940
TTTATAGAGC TTATCAAAAT AGATCAGAAC CTTATATATG TTATCTCCTG TAAGCTTTTC	3000
AGCTTCAATA GTCTGTTTCT TTGCTTTCGC ATCAATTAGT GATGATTCTA ATTCATCTAG	3060

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TTGTGCATAC ATACGATATA GTCTATCATC TAAATCCTGT TTCCTTCTCT TATAATGCTT	3120
ATCTTCAACA TCTAAATTAT CTATTTCTCT AATTAGCTTA AACTTTGTAG AATGACTCTT	3180
TCTCAATTCC TTTTGGTAAT TATCTATTTT TTTTCTATT TCAGAGGTAT CCACCTTCAT	3240
GTTGATTTTT TCTTGCATCA TAGAAGCAAA TTTCGGATTA CTTACTATCT TGACAATCAC	3300
CTCTGCAACA GCATCATCTA ACAATTCTTC TCTAATTTGC TTACTGAATG TACACTTATT	3360
ACCTCTTATC ATCTGCCTAT GGTACAACC ATAGTAATAA AAATCTTTAT ACTTTGTGCC	3420
ATCTTTCTTT TTCTTGATAC ACTTGTTCCT AAACATTCCC ACTCCACATA TCGGGCATT	3480
TACAATTCCA GAAAGCAAGT GTGTGCGTGT ATCTTTTCTT TTATTCACAT GCTCATATTT	3540
CTTTGCTTGA GATTTTAGCT TAACCTGAGC AGCTTGCCAA ACTTCATCGG AAATATAGC	3600
TTCATGTATC CCTTCAGATA TTAGATATTC ATCTTGTTCA ACCTGCTTAT ATTCATTTCT	3660
TGTACCATGA ACTTTTCTA AAGTTCTTCT TCCAAATGCT ATTTTCCCAT TATATACAGG	3720
ATTCTTTAAT ATCTTTCTTA TAAGACCTGC ATCAAACAAA GGATTCTTAC CATTCTGTCT	3780
TGGGATTTTT CTAATTCCAT GATTCTCTAA GTATTTAGAT ATCCCATTGG CTCCTATCGT	3840
AGTATTTACA TACTGGTCCA AAATCGTTCT TATTGCAACT GCCTCTTCTT CATTATATAA	3900
CAGCTTGCCG TCTTCAAGTT TATATCCATA CGGAGCAAAG CCACCATTCC ATTTTCTTCT	3960
CCCTGCTTTT TGAATGCGAC CTTCATTGT TTGAATACTG ATGTTTTCTC TTTCTATTTT	4020
AGCCACAGCT GATAAACAG AAATCATTAG TTCCCAGCA TCTTTAGATG AATCAATGCC	4080
ATCTTCAACG CAGATAAGAT TAACTCCATA ATCCTGCATT ATATGAAGTG TAGAAAGAAC	4140
ATCAGCGGCA TTTCTTGCAA ATCTTGATAA CTAAACACA AGAACAAAAG ATACTCCATC	4200
TTTCCAGAT TTTATATCTT CCATCATTCG ATTGAACTGT ATTCTACCTT CAATAGACTT	4260
GTCAGACTTC CCGGCATCTT CATACTCTCC AACAATTCA TAATCGTTGT AAATAGCAAA	4320
AGCTTTCATT CGTGATTTTT GTGCCTCTAA CGAATACCCC TCTATCTGTA TTGACGTAGA	4380
TACTCGTGTA TAGAGGTATA CTTTTATTTT TTCTTTTGAC ATAGTATTAA CCTCAATATA	4440
ATTTTCTAT ATCATATATA ATTTTPTTAA TTTAAGTTTG GACTATCATT TCAAGTATAT	4500
TATAACACTT TTATTAGTCC GTCTCAATTT GTGTTTTTGC CATGTCAAAA CTATTTTCA	4560
TCTCTTGATT TTTTGCTGGC GTTGGATCGG GTAGATTATC TAAATCTAAA GCACCAGCAT	4620
ATTTTGCAAT CAGATTGCT ATTAATCAG CCAATCCATT CCAGTCATTG TCCAATATAT	4680
ACCTCCTCTA AAGTTTATA TCTAATAATT ATTTGTTTAA TTAAGTTTTT TGACATTGAC	4740
AAGTGCTTTG GATTAGCAAC ATAGGAATCT CACTTCCGCC TCTATTCCGG ATGAGCCGGC	4800
TTCAACCTTA GAAGTATCAT TACCCTCATT TTCTTCATAG CGGATAGGGT ATCCCTCCTT	4860



1009

ATATTCAAAC TCTTACTTAT CGCTCACTTT CTTTTTGCTT AGCAGAACTT TTTTGGCCGA	4920
ATTATTGAGC CGAAAGATCT TGACGGATAG GTTATTACGC TCCAAAAATA ATTAACGTCT	4980
TGTCTTGGTC TATTCAATTG TTAAGGTTCA AAATTTATCG AGAGTTATTA ATCTTTTAA	5040
AATTTGACCA TCAGAAAATA TTTATCTTGA TGTAACAAAA TTCTATAAAT TACCCTCTTA	5100
TACTTAACAG TGAAAAGAAG TCTTCTTGG TAACCAATTT TGAAATAGAA TTTGCTTATA	5160
TAAAAAGGTC CAATTCCAC TGCATAAATA GCAGTGAAAA TTAGACCCTC TTGGTAACTG	5220
TCATCTAAAA GTCTTCTA	5238

(2) INFORMATION FOR SEQ ID NO: 151:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 13425 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 151:

GACGATTTAC GAAGAATCGA ACAAGAACCT GCTCCTATCA ATTCCCAACC TCTATCTCTA	60
AAATCTTGCA GTTCATGCTT ATACTTTTTT AAGAAATCTA GAATCATAGA TACGGTAGAT	120
GACATCGTCT GGTGACATT GGTCAAAATA GAACAAACCA AAACGACTCG TTCTATACCT	180
CCAACCTTTC AAATGCATCT CATGTAAATG TTCTTCTTCC TTGTCCAAAT CAACAATGGT	240
GAAAATCCGA AATCTACTC TGCTATTATG TGTCTTACCC CAAAATTAGA AAACATGCCT	300
GGCGTTATTT ATTAGATAAT TCTTCCACT TTTGACTCAA TCTCCAAAAA ATATAAGAAA	360
TCTGAATCGC AAAAATATC AATAAAACCC AATCTATTAT GAAAATCAAA AACACTTTCC	420
AACTGAAAGA ACTACCTCCA GTGACAAACT TTGAGAAAAA CGGTAGTAGA GCTAAAAAGA	480
GAAATAAAT AGGAAGCATC CGCATTGTTA AAATCCGTTT GGCATAAAAA AATCTTTATT	540
TAAACGAAAA TATTATGGCA AAATTTACGC CAGTTTTTGA ACGGCTGATG TAGATATTTT	600
ATACTTTCAA AATGTTTAAA TGTGATTATT TATTTTGA AAATAGATCA CCAGCCCGAC	660
TGAAAGTGCT TATAGAATGA TAATAAGTCG CCTGCCGAAA ACAGCGAAAA ATAGCGGTGT	720
TATGCGGAGA TAATCTGACG CGATGCGAAA GTATATTGCA TACTTATTTT CAACAATTTA	780
GCAGAGTATT TTTATAAGTG TGATATAATA GAAGTATAAT TTGTTCTGAT AGTTTATTTT	840
ATGGAGAACT AGATTTTTAG AATGCGGAGG GTTCAATATG GTTGAGTTTA TAAAGTCTAA	900
GAAAGAAATG AGTGAGGAGG ATATTAAAGC AAATTCATC ACTCTGCTA TTGTATCCAA	960

1010

AGGATGGAAA AATGGTGAGC ATATCGCTTA CGAAGAATAC TTCACTGATG GTCGAATTGA	1020
AGTTAGAGGA GATAAGGCTC GTCGTAAAGA AGGAAAAAAA TCAGACTATT CACTGTATTA	1080
CCAATTTGGA ACTCGAATTG CAATTGTTGA GGCAAAGGAT AATAAACACA GCGTTCGAGC	1140
AGGATTACAA CAAGCTATTG AATATGGAGA GATTTTAGAT GTTCCATTG TTTATTCTTC	1200
GAATGGTGAT GGCTTTATTG AACACGACCG TATCACGAGA GAAGAACGTG AGCTGGAGTT	1260
AGACGAATTC CCTACTCGTG AAGAATTATT TTCTCGTATG ACGAAGGAAA AAGGATTGAC	1320
GTACGAAATT ACAGAAGCTA TCTCAACTCC ATACTATACA GACGCCTTCT CAATGAAAAC	1380
GCCACGCTAT TATCAGCAAA TAGCTATCAA CCGTACTATT GAAACAGTTG CCAGAGGACA	1440
AAAACGAGTA ATGTTTGTGA TGGCAACAGG AACGGGGAAA ACGTTCATGG CTTTTCAAAT	1500
TATTCATCGC CTTGAAAAG CTGGTTTGGC TAAACGAGTT TTATTCTTAG CAGATAGAAA	1560
CATCTTAGTA GACCAAACGA TGGCTGAAGA CTTTAGGCCA TTCGAAAAGG TAATGACGAA	1620
AATTACACCA AAACCTTTGA CTGCTCCTGA AAAATTAAAT TCTTTTGAAA TTTATCTAGG	1680
GCTTTATCAG CAACTAACTG GTGAAGATGG AACTGAAACA CATTATCAAA AATTTGACAA	1740
AGACTTCTTT GATTTAATCG TAATTGATGA AGCGCACCGT GGTTCAGCTA AGGAAAACAG	1800
TAACTGGCGT AAGGTAATTG ATTATTTTCTG TTCTGCGACA CAGATTGGGA TGACCGCTAC	1860
TCTTAAAGAA ACCAAGAATG CTTCCAATAC GGAATACTTT GGTGAGCCAA TCTATACTTA	1920
TAGTTTAAAA CAGGGAATCG AGGATGGTTT TTTGGCTCCA TATCGTGTTA TGAGGGTTAA	1980
TTTAGATGTG GATGTGGATG GTTATCGTCC AGAACTGGA AAAGTTGATG CTAACGGACA	2040
ATTAATAGAA GATAGTACT ACGGCAGGAA AGATTTTGAT AAAACCATTG TCATTGATGA	2100
TAGAACGCAA AGAGTTGCCA AGTTTGTTTC TGATTATATG AAGCAAAACA ATGCACGATT	2160
TGATAAAACA ATTGTTTTTT GTGTTGATAT TGACCATGCC GAGCGAATGC GTGCTGCACT	2220
TGTAAAGAG AATCTAGACT TAGTCCAAGA AGACTATCGT TATGTCATGC AAGTAACTGG	2280
TGACAACGCT GAAGGAAAAG CTCAACTGGA TAACTTTATG GATGTCAATT CTAATTTTCC	2340
CGCTATGTGA ACAACGTCTA AATTATTAAC GACAGGAGTT AATGCTAAAA CATGTCGTTT	2400
GATTGTTTTA GACTCTAATA TCCAATCCAT GACTGAATTT AAACAAATTA TTGGTCGTGG	2460
CACACGTCTT TATCTCAAA AGGGGAAAGA ATTTTTTACG ATTATTGATT TTCGAAATGT	2520
TACCAATTTG TTTGCTGACC CTGATTTTGA TGGTGATCCA GTGAAGGTGC TAGAAACAGG	2580
TGCGAAAACA GTCAGTGGTT CTACGCCCGG TTTCGTAGAT GAGGAAGGTG ACCCAGTAGA	2640
AAAAATATATC GTTACAGACA AGCAGGTTAC CATTCTTAAT TCTACTGTTT AAGTATTGGA	2700
TGAAAACGGG AAACGTGATTA CCGAAAGCCT GACCGACTAC ACTCGAAAGA ATATCTTAGG	2760

1011

TAGCTACGCC ACTTTGAACG ATTTTATCAC AGTTTGGCAT ACGGCAGATA AGAAGAAGCT	2820
TATCTTAGAC GAACTTTATA AAAAAGGAGT TTATCTAGAT GCTATTGAG AGTCGGAGGG	2880
AATATCAGAA CAAGAAATCG ATGATTTTGA TTTACTCCTA AAACCTGCCT ATGGTCAAAA	2940
AGAATTAACC AAAACGGAAC GTATCAATAA ACTCAAACAA AGCGGATATT TATATAAATA	3000
TAGTGAGGAA GCGCGTGCTG TTTTGGAAAT TTTACTGAAC AAATACATGG ATAAAGGTAT	3060
<hr/>	
TGGAGAACTC GAAAGCATTG AAACATTAAA ACTTCCAGAA TTTCAGATAT ATGGTGGAAC	3120
CTTCAAAATC ATCAATACTT ATTTTGGAGA TAAAAACGA TATTTACAAG CAATTAAAGA	3180
ATTGGAGCAA GAGCTATTTA CAGTAGCTTA ATGAAAGGAA AGTATGTCAA TTACATCATT	3240
TGTAAAAAGA ATTCAAGATA TCACTCGAAA CGATGCTGGT GTTAATGGTG ATGCTCAACG	3300
TATTGAGCAA ATGTCTTGGT TATTATTCTT AAAAAATTAT GATAGCCGTG AAATGGTTTG	3360
GGAATTAGAA GAAGACGAGT ATGAGTCAAT TATCCCAGAG GAATTAATAAT GCGGAAATTG	3420
GGCTCATGCT CAAAATGGGG AACGGGTATT GACAGGCGAT GAATTACTTG ATTTTGTCAA	3480
TAACAAGTTA TTCAAAGAGT TGAAAGAGCT TGAAATAACT TCAATATGC CTATTCGAAA	3540
AACGATTGTT AAATCAGCTT TTGAAGATGC GAACAACTAT ATGAAAAATG GCGTCTTGTT	3600
ACGCCAAGTC ATCAATGTTA TTGATGAAGT TGATTTCAT AGCCCTGAAG ATCGTCATTC	3660
GTTTAATGAT ATTTACGAAA AAATTCTTAA AGATATTCAA AATGCTGGGA ACTCAGGAGA	3720
ATTTTATACG CCACGTGCAG CGACTGATTT TATTGCCGAA GTTCTTGACC CAAAACCTGG	3780
AGAATCAATG GCAGACCTTG CTTGCGGAAC AGGAGGCTTC TTGACTTCGA CTCTGAACCG	3840
TTTAAGTAGT CAACGTAAAA CTAGTGAAGA TACCAAAAAA TATAATACAG CTGTTTTTGG	3900
TATTGAAAAG AAAGCATTTC CTCATCTTTT AGCAGTTACA AATCTGTTTC TTCACGAAAT	3960
TGATGACCCT AAAATTGTTT ATGGAAATAC TTTGGAGAAA AATGTTGCTG AATATACGGA	4020
TGATGAAAAA TTTGACATTA TTATGATGAA TCCACCTTTT GGAGGGTCAG AATTAGAAAC	4080
AATAAAAAAT AACTTTCCAG CAGAATTACG GAGTTCTGAA ACAGCTGATT TATTTATGGC	4140
TGTCATTATG TATCGTTTGA AAGAAAATGG TCGTGTGGA GTTATTTTAC CTGATGGTTT	4200
TCTATTTGGT GAAGGTGTAA AAACCTGCTT GAAACAAAAA CTGGTAGATG AGTTCAACTT	4260
GCATACGATT ATTAGGTTGC CTCATAGTGT CTTTGACCGG TATACAGGAA TCCATACGAA	4320
CATTCTTTTC TTTGATAAAA CAAAGAAAAC AGAAGAACT TGGTTTTATC GTTTAGATAT	4380
GCCAGATGGT TATAAAAAAT TCTCGAAAAC TAAGCCGATG AAGTCAGAAC ACTTCAATCC	4440
TGTTCTGTAC TGGTGGGAAA ATCGTGAAGA GATTCTGGAA GGTAAATTCT ACAAATCTAA	4500

1012

ATCATTTACA CCTAGTGAAT TGGCTGAGTT GAATTATAAT TTAGACCAGT GTGACTTTCC	4560
AAAAGAGGAA GAGGAAATCT TAAATCCCTT TGAGTTGATT CAGAATTATC AAGCGGAAAG	4620
AGCAACTTTA AATCATAAGA TTGATAATGT ATTAGCTGAT ATTTTGCAGT TGTGGAGGA	4680
CAAATAATGA CACCAGAACA ACTTAAAGCA AGTATTCTCC AAAGAGCGAT GGAAGGGAAA	4740
TTAGTGCCGC AAAATCCCAA TGACGAACCT GCAAGTGAAT TATTAAAGAG AATTAAAGCT	4800
GAAAAAGAAA AACTTATCAG TGAAGGAAAA ATCAAACGAG ATAAAAAGGA AACTGAGATA	4860
TTTCGTGGTG ATGATGGGAA ACATTATGGG AAGTTTGCTG ATGGAAGCAC TCAAGAAATT	4920
GATGTTCCCTT ATGATATTCC TGATACTTGG GAGTGGGTGA GGTTTTCTAC ATTGGTTGAA	4980
ATTGTCAGAG GTGGCTCTCC ACGACCAATC AAGGATTATC TTAATTCTGA AGTAGATGGA	5040
ATAAATTGGA TAAAAATAGG TGATACTGAA AAGGGTGAAA AGTATATAAA TAATGTTAAA	5100
GAAAAAATCA AAAAATCAGG GCTTAACAAA ACTAGATTTG TAAAAAAGG TACATTTTGT	5160
TTAACTAATT CTATGAGTTT TGGTAGACCT TATATTTTGA ATGTTGATGG TGCAATACAC	5220
GATGGATGGT TGGCTATTTC GAACTATGAA AACTCATTA AATAAGATTA CCTATTCTAT	5280
ATTCTTTTCA CAAATGTAGT TTATTCTCAA TTTCTATCTC TAATTAGTGG AGCTGTTGTG	5340
AAAAACTTGA ATAGTGATAA AGTTGCTTCT ATTCTTATCC CTCTCCCCC ACTATCCGAA	5400
CAACAACGAA TAGTAGAAGC AATCGAATCA GCTTTAGAAA AAGTAGATGA ATATGCTGAA	5460
AGTTATAATA GACTAGAACA GCTAGATAAA GAATTTCCAG ATAAACTAAA AAAATCTATT	5520
CTTCAATATG CTATGCAAGG AAAATTAGTT GAACAAGACC CAAATGATGA ATCAGTCGAA	5580
GTTTACTTGT AAAAAATACG AGCAGAAAAA CAAAACTCT TTGAAGAAGG CAAGATTAAA	5640
AAGAAAGATT TGGACATTTT TATTGTTTCC CAAGGAGATG ATAACTCTTA TTATGGGAAT	5700
ATACCTATGA ATTGGGTTGT TATAAAAATA AAAGATATTT TTTCAATAAA TACAGGTCTT	5760
TCTTACAAGA AGGGCGATTT AAGCATTAAT AATAAAGGTG TTAGAATTAT ACGTGGTGGT	5820
AATATTAAGC CTTTGAATT TTCTCTGTTG GATAATGATT ACTACATTGA TACACAATTC	5880
ATCTCCTCTG AGCAAGTTTA TTAAAAACAT AATCAGCTAA TAACACCTGT ATCAACCTCT	5940
TTAGAACATA TTGGAAGTT TGCAAGAATC GATAAAGACT ATGATGGTGT TGTGGCTGGT	6000
GGATTTATTT TCCAATTAAC ACCATTGCGAA AGTTCAGAGA TTATTTCAAA ATTTCTATTA	6060
TTAACTTGT CCTCTCCGTT ATTTTATAAA CAATTGAAAG CAATAACTAA ACTATCAGGT	6120
CAAGCTTTAT ATAATATTCC TAAACTACA CTGAGCGAGC TATTAATTCC GTTAGCTCCT	6180
TTTGAGGAAC AGGAACCTAT TACTCAAAAA GTTGAGAAAC TTTTGA AAA AGTAAATCAA	6240
CTTTGAAAAT GATTCTTTTC ATCTCTTCAT GATTAGAAAT AGGGATTAAT AATTCGAGA	6300

1013

TACTGGTACT ATTTAATGTT TTCCCTTTGA TAGCATCTTT TGAATCACCT AAAGTAGAGA	6360
TAAGTGGCAA AAATATCATT AAGTAATCTC TGATAATATT TTCTTTATTA GCATAGGGGA	6420
ATATCGATAT AATGGCTTCA TTATGAGTGG CAGGAATATC CAATATGGCA ACTTTTCCAA	6480
TAGATAATTT AAAACTCATT AATAAAGTTC CTTTAGGTGA AATGTCTATT TTCTTTGATT	6540
TTAATGCTAA TTTAGAAATA GATTCTCTCG CATTAGTTAC ATAACCAGAT ATAGGCATAT	6600
CTGATATAGA TACCCAAGGT ATTTCAAGTTC CCCAAAAAGT AGCTTCACTG CGTGGAGGAG	6660
TTTTTCCTAT TCTGAAGTTA ACTAGGCTAG CAAATTTAAT ATATCTCCAT GCTTCTGGGA	6720
TTTCATATAT AGGATAAGAG GTTGTTTCGT CTTTGTTCCTC ATAATAAGAG CCATAATCAC	6780
AAAAATAGCA GGTAGTCAGT TTGACCACCT GTTATTTTTT ACCAATTAAC AATTTTATCT	6840
ACAATATTTT GTTGTTTCAGT AGCTGTTTTC CTTAGATAAA TTCGAGTAGT TTCTATACTT	6900
TCGTGTCCCA TCAAATCTGC AAGCAAGGCA ATATCATTAT ACTTCGCTAA AAAATTCTTA	6960
GCAAATAAAT GCCTAAAAGA ATGAGGGTAA APTACGTTAG GATTCATTTT GTATTTATCA	7020
GCATAATTTT TTAAGTGTG AGCAACTCCT CTTGCTGTAA TTGGTTCGTT AAATTTATTC	7080
AAAAATAAAT AACCAGTTCG GCGATTTTCT GATTCTAACC AACTAAGACA ACTATTTCTT	7140
AATTTTTTAG GAATGTACAG TCTACGAATT TTACCACCTT TTGAGTAAAT GTCAAAATAA	7200
CCGATTTCTA CATGCTCTAC TTTTAGTTTA ATAAGTTCAC TTACACGAGC CCCAGTTGCA	7260
CCTAAAAACC AAACGACAAA ATGCCATTTT AAAATACCAT CTTTTTTCAA ACTACGTTTA	7320
AGAAAAAGGT AATCAGCATG GCTAATGACA TCTTCTAAAA ACGGTTTTTG CTGTACTTTG	7380
ACAAATTTTA ATTTCAAATC ATCATGACCA ATAAAAGCCA GATATTTATT TACTCCTTGT	7440
AGTCGCAAAT TGACAGTTTT AGGTTTAAAA TTGTCTAATA AATATCCTTT GTATTCAAAT	7500
AAATCTTCCA TTTTGAGTTC GTAATTCTCC AAGAAAAATC GAACACCATA AAGGTACGAA	7560
CGCACAGTAT TTTCAGCTAA ACCAGCTTTC TTCAAATGTA ATTCAAATC TTCAACGTA	7620
AACTCCTAT CTTATGTTTG ATAGAAATTC CACCGCACGT AAAACTATTA TACTAAATTA	7680
GTGCGTCAAT ATGGGCGAAA AATTGTTTGA TTTTATCAAC GATTCTGGAT TGTTACGAA	7740
GGGGTGGGAG GGGGATTAAA TATTCTTTTA TAGTTTTCTG TAATAATTCT TTTTGTMTTG	7800
TACTACCCGA CGCTTTTTCT TCAATAACTG ACTGAACAAT AGGAGAGGAA AGAAAATTAT	7860
AGATGAAATG GCAATTAATA ACCCCCGATA AGACTCTTAT AACTGTAACA TGGCTATCTG	7920
CAACAGCCCA GCCATAAGGA TTTTATTTT CATGGTAAAT AGCTAATCGT CCTAACGTAC	7980
CTAGACCTGT TGAATTCCAC ATTAAATCAC CATCTCTTAG TAATCTTTCT TTCTGGTAAC	8040

1014

TATGAACTGT TTCGGGATCA ATAAATCTTG CTAAGTCAAT AGAAAAGCCA GACCATTGAT	8100
TACATTTCTG AGCAATCACA GGGTATATAG GAATATTTGA ATATTTTGGA GACTTCCCTC	8160
TTTGAATGTA GGAGGTTATA TCGTTTAACC TCACCCATTC CCAACTTTCT GGTATTTTAC	8220
AAGGTACTTC CTCATAATAA GAGTTATCAT CTCCTTGGGA AACAAATAGAA ATGTCCAAAT	8280
CTTTCTTTTT AATCTTGCCT TCTTCAAAGA GTTTTTGTTT TTCTGCTCGT ATTTTTTCAA	8340
GTAAACTTTC GACTGATTCA TCATTTGGGT CTGTTC AAC TAATTTTCCT TGCATAGCAT	8400
ATTGAAGAAT AGATTTTTTT AGTTTATCTG GAAATCTTT ATCTAGCTGT TCTAGTCTAT	8460
TATAACTTTC AGCATATTCA TCTACTTTT CTAAAGCTGA TTCGATTGCT TCTACTATTTC	8520
GTGTGTGTTT GGATAGTGGG GGGAGAGCAA TTAATAATAG ATTAAATTA TAATCATTGA	8580
TTGCAGGATA ACTTGTTC CA GTAGATTTAT TATTAACACG ATTGATAAAA TTATCTGATA	8640
ATAAATAATA TTTCAAATAT GTTTCGTAA GTAAAGTATC CAAAACAATA AATGCTGTAC	8700
TAGCTATCAA ATACTCTTTA AGTTCTCTAA CTACAGCAAT ATTTTTTAGA TATGGTCTAA	8760
CTGTGAAAA TAAGACACTA TTCTGCGAAA CTAATTTTCT AGCACGGGAA GGCGCTTGTT	8820
CAGGTGAAAG ATATTGTAGA TTTTGTAGT TGATTATGTT CTTTTTCTA TCAATACTAG	8880
ACGTATCTAT ATACCTAAAG GATTTCTCTG GCTTATTTTG CCCAAAATTC CAATAAATTG	8940
ATTTTATCCT CACCCACTCC CAAGTATCAG GAATATCATA AGGAACATCA ATTTCTTGAG	9000
TGCTTCCATC AGCAAACTTC CCATAATGTT TCTTATGTGC TTCAAGTATA TAAAAAGGCC	9060
TAAAAATACG CCTATAGATA ATGGGGTTGA AATAGGTTTA TTGTTGATGA GATTGTAGAT	9120
AATCAATTT TTTACTTCCA ATCGAATATT CAAATCCTCC ACCTTTTCTG CCTGTAATTG	9180
TTCATCATAA AATTCAATAT CTTCAGGATT TTCCCTTGG CAACCTCGGC AGAAATATTC	9240
TTCCGCTCGA TCAGGATTCA AAAATCGACA AGCACAACA AACAGTCGC CATCATCATT	9300
TATTGAGATA ATATAGTAGA TTGAAATAAG ATGTAAACAA ATCGATTAGG AAAGTTAAAT	9360
TAGTTTCTAG AAATTTT TAG CAGATGTAGT GTACTATTCT AGTCTCAATT TACTATGGCT	9420
TCAAATATAT CTTTCGAAAA AATATTTACA GATGTGTAAT TTTGAAGCTT GCAAAAGTTA	9480
GTAAACTTGT AGATTTTCGAT TTGAAGTAAC TTGTTTCTT GCCCGATATT GTTTTTGAAA	9540
TTGAATTTT CCATAGTGAC TCCTTAATTT TCTTCTACAC GTCTGATGAT AAATCTAATT	9600
CGCAAAAGAG TCAAGAGGAT TTTTCGAAAA ATAAATAGCG ACCGAAATCG CTATTTTAAG	9660
GGTTATAGGT ATTTGATGGC TTAGACTGCT GTGTGACTGT TTACCCACAG GCAATCTTTC	9720
TTCTATATTA GTATTAGTAA AGGTCTAAAT AATTATCAAT TTCCCATTTG GAAACGAAGG	9780
TTGCATAACT TGCCCATTCG ATTCGTTTGG CTTCAAGGAA GCTAGTATAG ATGTGATCTC	9840

1015

CGAGAGCAGC TTAAACCACT TCATCTTCTG TCAAAGCTTT CAAAGCGTTG TGAAGAGTTG	9900
ATGGAAGGTC TGTAATACCA GCTTCCTTGC GCTCTTCTGC TGTCATGATG TAGATATTTT	9960
CTTCGATAGG AGCTGGTGCT TCGATTTTAT TTCAATACC ATACAAACCA ACTTCCAAAA	10020
GAACAGCCAT AGCAACGTAA GGGTTCGCCA TTGGATCCAC TGAACGCAAC TCAAGACGAG	10080
TTCCCATACC ACGTGAAGCA GGTACGCCGA CAAGTGGCGA ACGGTTACGA CCAGCCCAAG	10140
CAATGTAAAC AGGCGCTTCA TAACCTGGAA CCAAACGTTT GTATGAGTTA ACTGTTGGGT	10200
TCATGATGGC AGTATAGTTG TAAGCATGCT TGATCAAACC GCCTAGGAAA TGGTAAGCTG	10260
TTTCTGACAA CTGCATTCCCT TTTGGATCAT TTGGATCAAA GAAGGCGTTA TTTCTTCTG	10320
CATCAAACAA GGACATATTA CAGTGCATAC CTGATCCAGC AATACCAAAT TTTGGCTTCG	10380
CCATAAATGT TGCGTAAAGT CCGTGTTCG GAGCAATGGT TTAAACAACA AGCTTAAAGA	10440
TTTGAATCTT ATCACAAGCA CGGAGAACTT CATCGTACTT AAAGTCAATC TCATGCTGTC	10500
CAACCGCAAC CTCGTGGTGA CTCGCTTCTA CTTCAAATCC CATTTTGGTC AAGACATTCA	10560
CAATCTCAGC ACGTGTGTTG TCCGCAAGGT CAGTAGGTGC CAAGTCAAAG TAGCCACCCT	10620
TGTCATTAC CTTCAAGTGT GGGTCCCAT TTTCATCCAA CTTAAATAGG AAGAATTCTG	10680
GCTCTGGACC AAGGTGAAG GATTGAATC CAACTTCTTC CATGTGACGA AGAGCTCGTT	10740
TCAAATTACC ACGAGGTCA CCCGCAAATG GTTCACCTTC TGTGTATAG ACATCACAGA	10800
TCAGACCTGC AACACTTCCA TTTCATCTC CCAAGGGAA GACTGTCCAT GTATCCAAGT	10860
CCGGGTACAA GTACATATCC GACTCATTGA TACGTACAAA ACCTTCAATA GAAGATCCAT	10920
CAAACATAAC CTTGTTCGAC AAGACCTTAT CTAAGTCTC ATCTGTAGCA GGAATTCGA	10980
CGTTTTTCAT GGTTCCTCAA ATATCTGAGA ACATAAGACG AATAAAGGTA ACATTTTTT	11040
CCTTGACTTC ACGACGAATA TCTGCAGCTG TGATTGGCAT AAGTTTTCTC CTTAATCTAT	11100
GACTACTTGC GGTTCCTTAA CCGCGACCAA AAGGTGACTG TACTGAAGCA AAACGCCCT	11160
GTTGGAGGAG TTCATTGTGA AGTGCACGAC GACTTTCAGT CTGACTAACC GCTTCTTGG	11220
ATTTTCGCTTC ACGTTCAGCA TATTTTTTCT TAATGGCAGC GATATTATAA CCTTCAGAGA	11280
TATAATCTTT GATTTCAAGC AGACGATCCA TGTCATTCAA GGAATACATG CGACGATTC	11340
CTTCGTTTCG ATCGGGCTTG ATCAACTCTT GATCTTCATA ATAACGAATC TGACGCGCCG	11400
ATAGATCGGT CAACTTCATA ACACTGCCGA TAGGAAAAAC AGCCATATTT CGGCGAAATT	11460
CTTTTTCTTT CATTTACAAT TTCCTTCTTT CTGTCTATTA TAGTCTAAAA AAAGACAAAC	11520
GTCAATTGAT AATGTTATAA AATGTAACAT TATTTTTCTT TTTTCTCTAA AAAGAGACGA	11580

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ATACGATCAA TATCGTAATT TACGATAATT GCGACAAAAA CTCCCATAAA CGTTTCTAAT	11640
ACACGCACAA ACACGTACAA AATTGTCTCA CCACTTGGAA TTGATAGGGT AATGATTAAC	11700
ATAGCTGCTA CACCACCAAT AACCCCTGCT TTGTTATTCA TGGCTACATT TGTGATAATG	11760
GTTAACATGG TGCAGATTGG AACAACTACC AAGGTCACCC AAAAGGCTTC GTGGAAAAAG	11820
GTATTTAATA AGAAGAAGAC CAAGGCATAG AGTCCACCGA TACTATTTCC TAGAATACGC	11880
GAAGTCCCAA AATGAACACT CTCATCAAAA CTCTCCCTCA GGCTAAAAAC GGCTGTCAAA	11940
GCACCAATTT GAAGACCTTT CCAGCCAAAA AAGCCAAAAA TCAAGAGAAC TAGAAAAACA	12000
GCAATACCTG TTTTAAAGGT TCGCATACCA AGTTTGAAGT GGGATTTATC GAATTTATAT	12060
TTTTTAAAT AACTCATAAT CTCAACTTTC TATTTCCATT TTATCATAAA TCGGTGATTT	12120
TTATGAGTAA TAGTTGAGAG GAAGCGTTTT TATTTTAAGC AAAAGAAAAG AGGAACTTTC	12180
ATCCCTCTCT TCTTTGATTT ATTTATAAAA TCTTATTTTT CTGTCAAGGC TGCAAGTCTT	12240
GGAAGAACCT TACCTTCAAG AAGTTCCATT GATGTCCAC CACCCGTAAT AATCCATGAG	12300
AACTTGCTCG CACGGCCAAG GTTAATCGCT GCGGCAGCTG AGTCACCACC ACCGATGATT	12360
GATTTAACTC CTGGTTGTTT CACGATAGCG TCCATCACAC CGATTGTACC AGCTTGGAAG	12420
TCTGGGTTTT CAAATACACC CATAGGTCCG TTCCATACGA CTGTTTTGGC ACCAGTCAAA	12480
GCTTCGTCAA ATTTGGCGAT AGATTTTGGA CCGATGTCAA GACCAAGGAA GCCTTCAGAA	12540
ACTGCTTCAC CTTCAGTGTC ACGCACTTCA GTGTAACCAG CAAATGCGTT AGCTTCTTTT	12600
GAGTCAACTG GCAAGATCAA TTTACCATTT GCTTTTTCAA GAAGAGCTTT CGCAACATCC	12660
AATTTGTCTT CTCTACAAG TGAGTTACCG ATTTGATAC CTTGTGCTTT GTAGAATGTG	12720
TAAGTCATCC CACCACCGAT AAGGACGTTA TCAGCTTTTT CAAGCAAGTT TTCGATAACA	12780
CCGATCTTGT CTGAAACTTT TGAACCACCA AGGATAGCCA CGAATGGACG TTCTGGAGTT	12840
TCAACTGCTT CTTGGATGTA GGCAATTTCTG TTTTCAAGAA GGAAACCAGC AACTGCTTTT	12900
TCAACGTTTG CTGAGATACC AACGTTAGAT GCGTGTGCAC GGTGAGCTGT ACCGAATGCA	12960
TCGTTTACGA AGATACCATC TCCAAGTGAT GCCCAGTATT TACCAAGTTC AGGATCGTTT	13020
TTAGATTCTT TCTTGCCGTC AACATCTTCG TAACGAGTGT TTTCAACCAA GAGAACTTGT	13080
CCATCTTCAA GAGCGTTGAT TGCCGCTTCT AATTGAGCAC CACGAGTGAC ACCTGGGAAA	13140
ACAACATCTT GACCAAGTTT TGCTGCCAAG TCAGCTGCTA CAGGAGCAAG TGATTTACCA	13200
GCTTTATCAG CTCTTCTTT CACACGTCCA AGGTGAGAGA AAAGAATTGC ACGTCCACCT	13260
TGTTGATGA TGTACTTAAT AGTTGGAAGA GCTGCTGTGA TACGGTTATC GTTAGTGATT	13320
ACGCCATCTT TCAATGGTAC GTTGAAGTCA ACACGAACGA GGACTTTTTT ACCTTCAAG	13380



1017

TCAACGTCTT TAACAGTAAG TTTTGCCATG TTACAAAAAC TCCGG

13425

(2) INFORMATION FOR SEQ ID NO: 152:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 905 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 152:

GATTTATCCT ACCGGnGAAT TTCCGGAGGG GTTCTAGCAG CAATCTTAGG AATCTATGAA	60
CGAATGATTG GCTTTCTGGC CCATCCCTTT AAAGACTTTA AAGAAAATGT TTTGTACTTT	120
ATTCAGTTG CCATCGGTAT GCTTCTGGGA ATCGGCTTAT TTTCTACCC GATTGAATAC	180
CTGCTTGAAG ATTATCAGGT TTTTGTATTA TGGAGCTTTG CGGGAGCTAT TATCGGTACA	240
GTTCCTAGCC TCCTCAAAGA ATCAACTCGA GAATCTGACC GAGACAAGAT TGATTTAGCT	300
TGGTTATGGA CAACCTTTAT CATTCTGGA TTAGGACTCT ATGCCTTAAA TTTTGTGTT	360
GGAACCTTAA GCGCCAGCTT TCTTAACTTC GTCCTAGCAG GCGCACTATT GGCCCTTGGC	420
GTCTTGGTTC CTGGCCTCAG CCCATCAAAT TTACTTTTGA TTTTGGGACT CTATGCTCCT	480
ATGTTGACTG GTTTTAAAC TTTTGATTTT TGGGAACTT TCTTTCCGAT TGGAATTGGT	540
GCAGGTGCAA CTCTCATCGT TTTTCAAAA TTGATAGATT ATGCCTTAAA CAACTACCAC	600
TCACGCGTCT ATCATTTCAT CATCGGTATC GTCCTATCAA GTACCCTTTT GATCTTAATT	660
CCAAATGCAG GAAACGCTGA AAGTATCCAA TACACAGGAC TTTCACTTGT CGGTTATGTC	720
ATCATCGCCT TCTTCTTTGC GCTGGGAATC TGGCTTGGTA TTTGGATGAG TCAATTGGAG	780
GATAAATATA AATAATGGCA AAAAAAGTTA AAATCAAAAA AACATTGGTG GAACAAATCC	840
TATCTAAAGC AGCTATCCCT CATCAGGGGA TTCAAATCAA TGCCCTAGAA GGAGAGCTTC	900
CTCAA	905

(2) INFORMATION FOR SEQ ID NO: 153:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 4278 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 153:

1018

CTTGAATTAA ATAAAAAACG TCATGCGACT AAGCATTTTA CTGATAAGCT TGTGATCCC	60
AAAGATGTGC GTACGGCTAT CGAAATTGCA ACCTTAGCGC CAAGCGCCCA CAACAGCCAG	120
CCTTGGAAAT TTGTGGTGGT ACGTGAGAAA AATGCTGAAC TGGCAAAGTT AGCTTATGGT	180
TCCAATTTTG AACAGGTATC ATCAGCGCCT GTAACCATG CCTTGTTTAC AGATACGGAC	240
TTAGCCAAAC GTGCTCGTAA GATTGCCCGT GTTGGTGGTG CTAATAACTT TTCTGAAGAG	300
CAACTTCAAT ATTTTATGAA AAATCTGCCA GCTGAGTTTG CCCGTTACAG TGAGCAACAA	360
GTCAGCGACT ACCTAGCTCT CAATGCAGGT TTGGTTGCCA TGAAGTTGGT TCTTGCATTG	420
ACAGACCAAG GAATTGGTTC TAACATTATT CTGTTTGTG ACAAATCAAA AGTTAATGAA	480
GTTTTGGAAT TCGAAGACCG TTTCCGCCCA GAACTCTTGA TCACAGTGGG TTATACAGAC	540
GAAAAATTGG AACCAAGCTA CCGCTTGCCA GTAGATGAAA TCATCGAGAA AAGATAGAAA	600
GAAGAAAAAA TGACAGCAAT TGATTTTACA GCAGAAGTAG AAAAACGCAA AGAAGACCTC	660
TTGGCTGACT TGTTTAGCCT TTTGGAAATC AATTCAGAAC GTGATGACAG CAAGGCTGAT	720
GCCCAGCATC CATTTGGGCC TGGTCCAGTA AAAGCCTTGG AGAAATTCCT TGAAATCGCA	780
GACCGCGATG GCTACCCAAC TAAGAATGTT GATAACTATG CAGGACATTT TGAGTTTGGT	840
GATGGAGAAG AAGTTCTCGG AATCTTTGCC CATATGGATG TGGTGCCTGC TGGTAGCGGT	900
TGGGACACAG ACCCTTACAC ACCAACTATC AAAGATGGTC GCCTTTATGC GCCCGGGGCT	960
TCGGACGATA AGGGTCCTAC AACAGCTTGT TACTATGGTT TGAAAATCAT CAAAGAATTG	1020
GGTCTTCCAA CTTCTAAGAA AGTTCGCTTC ATCGTTGGAA CAGACGAAGA ATCAGGCTGG	1080
GCAGACATGG ACTACTACTT TGAGCACGTA GGACTTGCCA AACCAGATTT CGGTTTCTCA	1140
CCAGATGCTG AATTTCGAAT CATCAATGGT GAAAAAGGAA ATATCACGGA ATACCTCCAC	1200
TTTGCAGGAG AAAATACAGG TGTTGCCCGT CTTACAGCT TTACAGGTGG TTTACGTGAA	1260
AATATGGTAC CAGAATCAGC AACAGCAGTC GTTTCAGGTG ACTTGGCTGA CTTGCAAGCT	1320
AAACTAGATG CCTTTGTTGC AGAACACAAA CTTAGAGGAG AACTCCAAGA AGAAGCTGGC	1380
AAATACAAGG TGACGATCAT TGGTAAATCA GCCCAGGTG CTATGCCTGC TTCAGGTGTC	1440
AATGGCGCAA CTTACCTTGC CCTCTTCCTC AGCCAGTTTG GCTTTGCTGG TCCAGCCAAA	1500
GACTACCTTG ACATCGCAGG TAAAATTCTC TTGAACGATC ATGAGGGTGA AAATCTTAAG	1560
ATTGCTCATG TGGATGAAAA GATGGGTGCT CTTTCTATGA ATGCCGGCGT CTCCACTTC	1620
GATGAAACAA GTGCTGATAA TACCATTGCC CTCACATCC GCTATCCAAA AGGAACAAGT	1680
CCAGAACAAA TCAAGTCAAT CCTTGAAAAC TTGCCAGTTG TTTCTGTAG CCTGTCTGAA	1740
CACGGTCACA CGCCTCACTA TGTGCCAATG GAAGATCCAC TTGTGCAAAC CTTGTTGAAT	1800

1019

ATCTATGAAA AACAACTGG CTTTAAAGGT CATGAACAAG TCATCGGTGG TGGAACTTT	1860
GGTCGCTTGC TAGAACCGGG AGTTGCCTAC GGTGCTATGT TCCCAGACTC GATTGATACC	1920
ATGCACCAAG CCAATGAATT TATCGCCTTG GATGATCTTT TCCGAGCAGC AGCAATTTAT	1980
GCCGAAGCTA TTTACGAATT GATCAAATAA AACGATAGAA GTCTGAGATC TTATGCTTGG	2040
ACTTCTTTTT GGAGGGAAAG TAGATGTCTC AAATCGAAAG AATCAAACAG GCTATCATGG	2100
CGGATTCGCA GAATGCCAGC TATACAGAGC GTGGCATTGA GCCTCTCTTT GCAGCGCCAA	2160
AAACTGCTCG CATCAATATC ATCGGTCAGG CTCGGGACT TAAACTCAA GAAGCAGGCC	2220
TTTACTGGAA AGATAAAAGT GGTGACCGCT TCGGGGACTG GCTAGGTGTG GATGAAGATA	2280
CCTTTTACAA TTCAGGTTAT TTTGCTGTTT TGCCTATGGA TTTCTACTTT CCAGGACATG	2340
GCAAGTCGGG TGATCTTCGG CCTCGTACAG GTTTTGCAGA AAAATGGCAT CCGCAGGTCT	2400
TACAGGAATT GCCTGATATT CAGTTAACCC TCTTGATTGG GCAATATGCC CAAGCCTACT	2460
ATTTACAGGA GAAATCAGT GGGAAGGTAA CGGAGAGGGT GAAACACTAT AAAGACTATC	2520
TGCCAGCCTA TTTCCGCTA GTTCACCCAT CACCACGAAA TCAAATCTGG ATGGCCAAAA	2580
ATCCTTGGTT TGAGGCAGAA GTAGTGCCAG ATTTGAAAAA AAGAATTAAA ACCATTTTAT	2640
AGTCAATGAA AATCAAAGAG CAACTAGGA AGCTAGTCGT AGGCTGCTCA AAGTACAGCT	2700
TTGAAGTTGC AGATAAACT GACGAAGTCG GTAACATACG CACGGTAAGG CGACGCTGAC	2760
GTGGTTTGAA GAGATTTTCG AAGAGTATTA GAAGAAAAAG AATGAAAGAA ATAGCCTTTG	2820
ACGCATTTTA CCAGCTTTAC CAAAACGACC AGCTTTCTTT AGTGGATGTG AGAGAAGTGG	2880
ATGAGTTTGC AGCTCTTCAT TTAGAAGGTG CCCACAACCT ACCGCTTAGT CAATTGGCTG	2940
ATAGTTATGA TTAATTGGAC AAAGATCGCT TGCATTATAT TATTTGCAA TCTGGAATGA	3000
GATCGGCGCG TGCTTGCCAA TTCCTATTAG AACAAGGTTA TAATGTTATC AATGTCCAGG	3060
GTGGCATGTT AGCCTTTGAA GAACTTTAAA ATTTTGCAAT TCTCCTACTT GGTGTGGACT	3120
GGGTAGGAGA GTTTTATTTT TAGATAATTC TTATTTTAA GAAAATTGAA AACATTTAAT	3180
ATTTGCCTCG TGATGCTTTT TTCAGACTCC TAATCGTGGT ATACTAGGTC AGTATTTTAT	3240
AAATATGAAG GAGATTTTTA TGGCTAAAAA AGGTACCCTA ACAGGTTTGC TCCTGTTTGG	3300
AATATTTTTT GGTGCGGGGA ACTTGATTTT TCCGCTTCT CTAGGTGCTC TATCTGGAGA	3360
ACATTTTCTT CCTGCCATCG CAGGTTTTGT CTTTTCAGGC GTTGGTATCG CCGTCTTGAC	3420
CCTTATTATT GGAACGCTAA ATCCTAAAGG ATATATCTAC GAGATTTCAA CGAAGATAGC	3480
GCCTTGGTTT GCGACTCTTT ACCTCTCAGT TCTTTACTTG TCAATCGGTC CATTCTTTGC	3540

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TACCCACGT ACTGCTACAA CAGCTTACGA AGTAGGGATT AGCCCCCTTT TGTCGGATGC	3600
AAATAAAGGA CTTGGCTTGA TTGTATTTAC GGTTCGTAT TTTGCGGCAG CCTATTTGAT	3660
TTGCTTAAT CCATCAAAAA TCTTAGACCG CATTGGACGT ATTTTAACGC CAGTCTTTGC	3720
AATTTTGATT GTTATCTTGG TCGTTCTGGG AGCTATCAAA TATGGTGGAA CAAGTCCTCA	3780
AGCTGCTTCA CTGCTTATCA AGCTTCTGCC TTTGGTACAG GTTTCCTAGA AGGTTACAAT	3840
ACCTTGGACG CCCTTGCCTC AGTGGCCTTT AGCGTAATCG CAGTTCAAAC CTTGAAACAA	3900
CTTGGATTTT CAAGTAAGAA AGAATACATT TCAACTATTT GGGTTGTTGG TATCGTTGTT	3960
GCCCTTGCCT TCAGCGCTCT TTACATCGGT TTAGGTTTTT TGGAAATCA TTTCCAGTA	4020
CCAGCTGAAG CGATGAAGGG TGGAAACCA GGTGTTTACA TCTGTCAACA AGCCAACAA	4080
GAAATCTTTG GCTCAACAGC TCAACTCTTC CTTGCAGCTA TGGTTACCGT AACCTGCTTC	4140
ACAACGACTG TTGGTTTGAT TGTGTCAACA GCTGAGTTCT TTAATGAGCG CTTCCACAA	4200
ATCAGCTACA AGGTTTATGC GACAGCCTTT ACCTTGATTG GATTTGCTAT TGCCAATTTG	4260
GGTCTTGATG CGATTATC	4278

## (2) INFORMATION FOR SEQ ID NO: 154:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1953 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 154:

ACCCGATCAA ATGACAAAAG CTAACCTTTG TGTCGTAGGT ATGGCCGTAA TGGGTCGTAA	60
CCTTGCCCTT AATATTGAAT CTCGTGGTTA CACAGTTGCT ATCTACAACC GTAGTAAAGA	120
AAAAACGGAA GATGTGATTG CTTGCCATCC TGAAAAGAAC TTGTACCAA GCTATGACGT	180
TGAAAGTTTT GTAAACTCAA TCGAAAAACC TCGTCGTATC ATGCTGATGG TTCAAGCTGG	240
ACCTGGTACA GATGCTACTA TCCAAGCCCT TCTTCCACAC CTTGACAAGG GTGATATCTT	300
GATTGACGGA GGAAATACTT TCTACAAAGA TACCATCCGT CGTAATGAAG AATTGGCAAA	360
CTCTGGTATC AACTTTATCG GTACTGGGGT TTCTGGTGGT GAAAAAGGTG CCCTTGAAGG	420
TCCTTCTATC ATGCCTGGTG GACAAAAAGA AGCCTACGAA TTGGTTGCGG ATGTTCTTGA	480
AGAAATCTCA GCTAAAGCAC CAGAAGATGG CAAACCATGT GTGACTTACA TCGGTCCTGA	540
TGGAGCTGGT CACTATGTGA AAATGGTTCA CAATGGTATT GAGTACGGTG ATATGCAATT	600
GATCGCAGAA AGCTATGACT TGATGCAACA CTTGCTAGGC CTTTCTGCAG AAGATATGGC	660

1021

TGAAATCTTT ACTGAGTGGG ACAAGGGTGA ATTAGACAGC TACTTGATTG AAATCACAGC	720
TGATATCTTG AGCCGTAAAG ACGATGAAGG CCAAGATGGA CCAATCGTAG ACTACATCCT	780
TGATGCTGCA GGTAACAAGG GAACTGGTAA ATGGACTAGC CAATCATCTC TTGACCTTGG	840
TGTACCATTG TCACTGATTA CTGAGTCAGT GTTTGCACGC TACATTTCAG CTTACAAAGA	900
AGAACGTGTA CATGCTAGCA AGGTGCTTCC AAAACCAGCT GCCTTCAACT TTGAAGGAGA	960
CAAGGCTGAA TTGATTGAAA AGATCCGTCA AGCCCTTTAC TTCTCAAAAA TCATTTCATA	1020
CGCACAAGGA TTTGCTCAAT TGCCTGTAGC CTCTAAAGAA AACAACTGGA ACTTGCCATT	1080
TGCAGATATC GCATCTATCT GGCCTGATGG CTGTATCATC CGTTCTCGTT TCTTGCAAAA	1140
GATTACAGAT GCTTACAACC GCGATGCAGA TCTTGCCAAC CTTCTTTTGG ACGAGTACTT	1200
CTTGGATGTT ACTGCTAAGT ACCAACAAGC AGTACGTGAT ATCGTAGCTC TTGCGGTTCA	1260
AGCAGGTGTG CCAGTGCCAA CTTTCTCAGC AGCTATTACT TACTTTGATA GCTACCGTTC	1320
AGCTGACCTT CCAGCTAACT TGATCCAAGC ACAACGTGAC TACTTTGGTG CTCACACTTA	1380
CCAACGTAAA GACAAAGAAG GAACCTTCCA CTACTCTTGG TATGACGAAA AATAAGTAGG	1440
TCAGCCATGG GGAAACGGAT TTTATTACTT GAGAAAGAAC GAAATCTAGC TCATTTTSTA	1500
AGTTTGAAC TCCAGAAAGA GCAGTATCGG GTTGATCTGG TAGAGGAGGG GCAAAAAGCC	1560
CTCTCCATGG CTCTTCAGAC AGACTATGAT TTGATGTTAT TGAACGTTAA TCTGGGAGAT	1620
ATGATGGCTC AGGATTTTGC AGAAAAATTG AGCCGAACCT AACCTGCCTC AGTCATCATG	1680
ATTTTAGATC ATTGGGAAGA CTTGCAAGAA GAGCTGGAAG TTGTTACAGG TTTTGCAATT	1740
TCATACATCT ATAAGCCAGT CTTATCGAA AATCTGGTAG CGCGTATTC GGCGATCTTC	1800
CGAGGTCGGG ACTTCATTGA TCAACACTGC AGTCTGATGA AAGTTCCAAG GACCTACCGC	1860
AATCTTAGGA TAGATGTTGA ACATCACACG GTTTATCGTG GTGAAGAGAT GATTGCTCTG	1920
ACACGCCGTG AGTATGACCT TTTGGCGACA CGG	1953

(2) INFORMATION FOR SEQ ID NO: 155:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6474 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 155:

CCGGCAGTAC ACGAGCTTGG GGAACAGCCA CTGGAACGAT GAGGTGTGAG CTCAAAATAT 60

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CCTCCAGTTA TGTTTTTCCT AATAGTATAC CGGAAGAGTG AAAGGATTTT ATAATGGAGC	120
GGTTACAAAG AACCTACTTT CTATTAAACA GTATACTATG AAAATGTGAA AATTTAACAT	180
TTTTTTGTAC AAATTTTATA AATTATTGCC TTTTAAATAT CAATAGTTAA TCTCTTATCC	240
AGATCCCCCT TGTGTAAACT TTATCTTTAT AAGCTTCAAG GCCCCTATCC CATCTATTG	300
CAACAATTAG ATCACTTTGT TTTGTAAATA GTTCAAAATT CTTTCAATA ATTACGTTAT	360
CTATACTAAC GTTTAAATTT GGTTCATATA CTAAAATTTT TATACCGACA ATCAATAGTT	420
CATTAATTAT ACTTAAATA GCTGACTCTT TGTAATTATC TGAATTATAT TTCATCCCCA	480
ATTTATATAT TCCTACTATC TTTGGCTTTC GTTCCAATAT TTGTTTAACT ATGAACTGTT	540
TTCTATTGTG GTTTGAAATA TCAATCGCTT CTATCACTGG GGCATTTATT TCTATAAATT	600
CTTTTTTTAA TTGTTTAGTA TCTTTGGGAA GACAATATCC TCCAAATCCA AAAGAAGGAT	660
TATTATAAAA ATTTCCAATT CTTGGATCTA AACAAACACC TTTTATTACA ACTTCAGCAT	720
TTAAGCTTCT CCTCTCAGCA AAAGAATCTA GTTCATTAAA AAAGCAACAC GGAGAGCTAA	780
GAATGTGTTA GAAAAAGCT TAATTGCTTC TGCTTCAGTA GGAGAACTA ACATAACATT	840
TTTAATATTG GCAGTACTAT GAGTACTAAT CGAAAGGAAC AACTCTGCAA TTTTCTTCC	900
TTCAACTGTC TCATCTCCAA CAACTATGCG ACTGGATAT AAATTATCAT ATATAGAACA	960
ACCTTCTCTC AAAAATTCAG GGACAAAAAT GATATTTTTT GTATCAAACA GCCTTTTAA	1020
TTTGTTTGAA AAGCCGATCG GAACTGTTGA CTTTAAATA ATCTTTCCAT TAGGTTTAC	1080
CCTCAGAATC TTCGATACCG TTTGTTGAT TTCATATGTA TTAAACTAC CAATTTCTC	1140
ATCATAATCT GTCGGAAGCG CAATAATATA ATAATCAATA TTATTTTAA TTTGAAAA	1200
TGTATCAAAA AAAGTAATAT TTAAGTTATT CTCGCAAAA AACTTCATAA GCTCTTCATT	1260
TTTAGATGGA AGAATGCCCT TTTTAAATT ATTTATTTTT ACAGAACTA TATCATATGC	1320
AACAACTTTA TATTTAGATG CAAATAGTAA CGCGTAGGCC AGCCCAACAT GCCCCAAACC	1380
AATTACTGCT ATATTCATAA AACTACTTCC TTATTTCTTA ATCCAAAATC TAATAGAA	1440
AGCTGCCCCA TTCCTTAAAT ACAACTCTTT AATATTGTTT AAAAGTTTTT CAACTGATTT	1500
CCAGATTATC AAAATCTGAG ATTTATAGCA CAATATTGAT GATATTCTAT CAATATAATT	1560
TTTTTCATCA AGTTCCTCTT GATACATTTT TAATTCTTTA GTTTTTCCCA TATACTAAC	1620
CATACTACTA TCACTTACAT ATGGGAAGTC CTCATAATAT ATTACTTTAT AACGCATAAA	1680
TTCAAGCGCC CTTCCAATAC TATTCACAAA AACATGAGCA ACATGGTCAC CAAGTGAAAG	1740
CGGACAATAT ACGACACATT TGTCGTCTAA ATGCATTAAC AGCTCTTTTA TGATATCATT	1800
CTTTAATGTG TCCTCATTTT TTAATTCACT ATAGATATGA CGGTATAGAA AATTGCCATT	1860

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TCTATCTTTC CTATAGAGAC ATTCATAGTA CGATAAGTGT CTAAAATCAC ATTGTAGACG	1920
TTCACAAGCT AACCTGTCTT CTTTCTTCCT TTCTTCAATC GGATATTTCC CAAGGTTACA	1980
CAACTTATGA AATTGCTTAG CAGAGGGCTG TAGCTGTTGG CTCAAAGGGT AACCAGAAAA	2040
TATAGTAATA ACAAGTACAA TTTCTCCTTC TGAAGTTAAT TTTGAAATAT AATCACCACA	2100
GGAAAAAATT GCGTCATCTA AATGTGGAGA TAAAAAGATA TACTTAGTAT TGTACTCAT	2160
AACCATTTCC TCTACAATTT ATCTAAAAAC TCACTAAGTG TCTGATTAAA TTCCACATCA	2220
TCAAAAAAAT TCACCTTATT CTTAATAATG AATATTTTCGT TAAATAAACA TATATATAAA	2280
TATTTCAATA TCCTTTCAAT ATCATCCTCT AAATTCTCCT CAATATTTTG TATCAGCCCA	2340
TTTACAATCT TATTAAAAAA GATAAGCTCT TTATCTCTAA AATTAAATAT TTTCATACAA	2400
CTGTTGTATC GAAAAATATA TAAATAAAT TTTACTAATG TTTGAATATT TAAACAACTA	2460
AATAAATGAG TTGTACCCGG GACACTATTT ATGTTATCAA GAACACTATC TTGAAACCTC	2520
AACTCACAGT TCTTTTTGTG AAATTCTTTT TTATCGTTTA CATCTGATAT TTTTTAGAC	2580
ATTTCAACAA TCTCAGACAT TTTATATGGA TATCTAGGAT GAATGCCAAA ACTATGCAAA	2640
ATGAACTGCA CCCCCAAAGT TAGACAGAAT AAATCTAACT TTTGGGGTGC AGTTCATAAG	2700
ATTGGGATAT TTTTTTTTAG CTAGAACTAG TAGAAATATA TAGTCAAATA ACAGATACCT	2760
TAAGGGTTTC TCATCTACAT AAAAAAATGA TACTTTTTTC TCTTCAGTAA TTACCTCATA	2820
AGCTTCACAA TAGAATCTCA TGTTTCCCTC CCCTATATTC TTAAATAAAA TCCTTTGGAA	2880
ATTGATATAT CTTAGTAAAA TATTGTTTAA GTTCCGGATG CGGAGCATGG GTAACAATAA	2940
TGACAGTCAA ATCCTCTCTA TCTAATATCT TACGTTCAAT CGCTAACGAA GTTCTCCTAT	3000
CGATAGCAGA AGTTCCCTCG TCAATTAATA CTATTTTCTT ATTTCTAATT AGCCCTCTAG	3060
CTAAAGTAAT TTTTGTTC TGCCCTCCTG ACAGTAATCT CCCATCATCA CCAACATAAT	3120
AATCTAAAAT GTTATTAGGA AAATCTTTTA CACTCAAACC AACTTGCTCT AAAGACTGTA	3180
GTATTTCTTC ATCAGTATAA TTTCTTTCCA ATAAAATATT ATCTCTAATC GTACCTTCAA	3240
ACAAATAAGC TTTTGTATCT ACATATAGAA CATTCGAAAC CATATTTAAA TAGGAGGTTT	3300
TTTTTATATC ATCCCCGAG AATCGCAATT CTCCACTATA ATCTCTCAAA AAGCCATTCA	3360
ATAATTTTAA TAATGTAGAT TTCCCGCTTC CACTTTCACC TAAAATTAAA TACTTTTCAT	3420
TACGTTGAAA AAAAAATTT AAGTTTTTTA ATATTTCTTT ATCTCCATAC TTATAGCAAA	3480
TATTTTTTGC TTCATATAAC GGAAAATCTC TATTCACCTC ATTTGGTTTC ATATCATTC	3540
TTTTATTGA CTCAATTGGA TTAATTGAAT ACAATTTTAA AAAAATAGGC TTCGTACCAA	3600

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TAATAGAGGA TAATTGACCT CTAATTCAC CTAGCGCTGT AAAAATAACA CCTGTTAGTG	3660
CTCCTATTGC TTCAATAGTA CCAATTTTCA CTATTCCTTT TATTGCAAGA TAGCCTGTTA	3720
AAAAACGAG AGATATCTGA AAAAAATAT TGAGAAAGAA GCTAATAGCG CCTGCTAACG	3780
TTTCTACAGT TGTCTTTCTT TGTATAACCA TCTTTAATAA AATTCCTGCT TCTTTAATTT	3840
TCTTAGGCAA TACATATAAA AGATTCAAGG ACGCTAACAC ATCAAATCCA TTCAATATAG	3900
TCTCACTAGA TTTTAAAAAA GCTTCATTTT GGTAGTTAA ATTTAGACTA ACTTCTCGCA	3960
TTTTCGATGC AAAGATTTTT GGTACAAGTA GCATAATCAT TAATGAAAAC AAGGTGGCTA	4020
CAGTCAATGA CCAATGATAG TGATTAAAGAG TCACAACGTC AAATATAGTA CCAGAAATTC	4080
CTTTTATTAC TAAAAAAGT TGTTTAAACG CCTGATCATT TAAAGTCTGA ACATCATTAT	4140
TTAGCCACGA AAGATATGTT CCTGATGATT TACTATGAAA TTCTTGATAG GTAGAGTTAG	4200
AGATGTCTGT GGCAACTCTA TTTCGAATCT CTAGATTAAA CTCTTGATC ACTTCAACCT	4260
GATAATTTTT CACTACCCAG TCAAGGAATA TTATCCCACA CCAGACAATC ATTTGGTAGA	4320
TTGACAATTT CAAAAACCGC TCTAAATTC TCGCAATTAA TTCATTCAAC ACCAGAGCAT	4380
TAATAGTTGC TGCATAAATT AGCAATAATT GACCAGCAAC AATAAATATC GTTAATAAAC	4440
TAAATTTTTT TATATTGAT TTTATAATAG TATACACAAT AGTTTCTCAC TTTCTAAATT	4500
TTAATGAAC ATAGTTTTCA TATATACAAT AGAAAAACC AAAATGATAT AATAACATAT	4560
ATTTCAAAAA AGAAATTCGT TAAAAATTTT TTCTTCTCTT GCCTTCTTGA TTACTTTTAA	4620
AGCCTTGCAT TTGTCTCCTA TTAATAGTAA CCGCTTTATG TTTAAAGAAT AATATTTCTT	4680
TGTAACCAAT ATTCTCTCGT TGAAACTCAA TAAATTAAAA TATTCCTAC AGTAATTATA	4740
ATATTCTTCA TCTGCATTAA TTGTTTTTTG TGTCACTCCA GTGATACCGT TTTCTTTACT	4800
GTGAGCGTAG TAATTCACCA AGAATCTCTG CACTATATCA ATTTGGTATC CTTGAACAAG	4860
TAGTTTTAAT AAAACAACAC CGTCCTGATG TGAATCTATT TTCTCAAAAC CATTAATTAA	4920
TTCTAGCACC TCTTTTTTAC ACAACCAAAA TGACGTACCT GCTATATTGT GAACCATTTG	4980
AACAAACAAG GGATTTCCAA CAAAATCGGT CTTCTCCTCT TCTCGTGAC CATTTGGATA	5040
AATTATTATT CCATAACTAC AAACTAAAGC TAAATCTTC ATTCTACTCT TTTTAAACA	5100
AGCCATCAAC TTTAAAATTC GATCTGGCAT ATATTCATCA TCATCGTCTA AAAATGATAT	5160
ATACTTACCT CTAGAATTTT TGATACCTAT GTTTCTGGCA TTAGTTGCAC CTAAATCTTC	5220
ATTACTTAAA ATTAACCTAA TTCTATGATT GGTATAGCCA AATTGATGGA TAATTTTATT	5280
TCTTAAATTT ACATTACTAT AATTATCATC AATAATTATA ACTTCGATAT TTTTATAACT	5340
TTGATGTAAA CAACTTTTCA CAGCTCTAAT CAGAGATTCA TACCTATTAT GTGTGGTAT	5400



1025

TATAATACTT ACTAATTCTT GATCTATATT CCTATCCATG ACTACTCTTC TCTAATAATT	5460
CATCATATAC TCTCATGGTT TCTACAAACA TTTTGTGCAC AGAAAAATGT TTTCTTATTT	5520
TTGATTTACT ATTCTCACCT ATATATTTCA AATACTCAGA ATCATTGAGT AAAAAATTAG	5580
CACAAGCACA CACTCCCTCA ACATCTTCCT TCTCAAATAA AAATCCATCA ACCCTATGTT	5640
CAATAATTC ACTTAACCCG CCAACATTAC TAGCTAAAAC CGGAGTTCCT TGTGACATTG	5700
ACTCTAAAAC ACACATAGGT ATTCCTTCTG TATCAGAAGG AATATACAAT AAATCCGATA	5760
TTTGGTAAAC TATAGTAGCT GGATAGATTT CACCAAGTAA CCTGAAATTA TCTCTACATT	5820
TCAAATGGCA AATTTTTTCT TTCAAAGCAG CCCACATACT ACCATTTCCTA GCCATAATAA	5880
AAATCACATC TTCTCTGACT AAAAATAATT TTTCTGCAAA TTCAAGGAAT CTATCCGGCC	5940
TTTTTCTGG ATCCAACCTT CCAACATAAC AAATGATTTT TTGTTATTTG GAATACAAAA	6000
TTCTTTTTTA AAGTCTTGAA CACCTACTAC ATCTAAATCG CTATTTGATA CATTAATTCC	6060
GTTATTTATT GCAACTATCT TCTTATTTTT TATTATACTC TCCAATCTTT TTTTTCATAG	6120
TTTCAGATAC ACAAATAAAA GCATCTCCCA TAGAATATGT CCAAAAATCA AAATAAGTCA	6180
AGAATTTCTT TTTTAAGTTA TATTCAACCC ATCCATGGCA TGTATCACT GTCTTAACCT	6240
TTCCAAATCC ATTCTTGTC AATTTTTTTA ACATATATAA AAAATAATTA GTTGAGTAGC	6300
CATGACAGTG TATAAGTTGG ATTTTAAATA ATTTTAAAT ATTTTAAACG TGTAAGGCAG	6360
TTTCAAATTT ATTTGAACAT TGAGTACAAT CAACATAGGC AATATCTAAA TTTTATAAT	6420
CATCAATAAC CTTTGAATCT CTAGATACAA TTATCAAAAT AGGGAATAGA GACA	6474

(2) INFORMATION FOR SEQ ID NO: 156:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 4792 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 156:

TATTTAACGA TTTTTCAT GTCATTCCT CCAAATAGA ATACCTTATA ATCTTAACAG	60
AAAAAGAGCA TTTACGCCAT TATATGATAT CTATCTCTGT GATAAGTTTT TTTATGGGT	120
AATTTAAAG ACCAAACGCA AGATGGCAAT CAAGACCACT CCAAAGAGAA CTGTTCCGAC	180
TAGATTGCGG TAGCGAAAGG CTACCCAAGC TGTGGAAAG ACGGCTAAGA AGTCCAGTCA	240
TTTGATTTGA GGAAGACTGC CAACCTTACC TGTCACTACG CTTGAAAGAA TCAGGGCAAA	300

1026

GATAATGGAA ACAGGCAAAA ACTTCAAAAA ACGCTCAACA ATCGCAGGCA GGCCCTTATA	360
CTTGACCAAG ATGAAGGGAA TCATACGGGG AATCCAAGTC ACCAAGCCAG AGAAAATAAC	420
TGCTAATAAA AGATACTTAC TGACCATCTA AAACCACCCC CATGCTACAA CCAAGTAGCG	480
TCGCAAACAG AACAGCTAGT GACTGAGACA TCACTGTCAA GAGCAAAAAG AAGGACACCG	540
CAACAACTGC TAGGATAATG AGCAGATTGC GGACAGGAAT CCGTCTTTGC ATAATCTGAA	600
ATTGCGAAGC AAAATACCAA TAAACATCCC AACCAGGGCA AAATCCAAGC CAAAGATTTT	660
TGGATTTGGT AGCAGGCCAC CCAGAGCCGT TCCGACTACT GTCCCCACAA ACCAAGCCAC	720
ATAGCTGTTA AGATTGTTTC CGTGCATCCA CATAGGATTT ACCTTGCTCTG TATGGGCCAA	780
TTCACCCATC AAAACGCCAT AGGTCTCATC TGTCAAGATA CTAGACATAC CGATATTGTA	840
CCAAAGACTG GTATGACGGA AATAAGTCGA TGCCTGTAAA CTCAACAAAA AGAGACGCAA	900
GTTGATTAGA AAAACCGTCA TAGCAATAGC TGCCACAGGA GCTTGAACCA CAATCAGTGC	960
CAACATGGCA AACTGGGCAC TCCCAGCATA AACAAAGAGA CTCATCAAGC CCATCTCAAC	1020
AGGTGTCACA TAGGGCGCAC CGATAATTCC ACAGGCCAGG CCGATACTGA CATAGCCAAG	1080
AGCCGTTGGC ATGGCTGCCT GCGCCCCCTC CTAATACTCT TTTTCTTTCA TCTTTCTCCT	1140
CATATTGTCT TAATAATACT CAATGAAAAT CAAAGAGCAA ACTAGGAAAC TAGCCGCAGG	1200
TTGCTCAAAA CACTGTTTTC AGGTGTCAGA TAGAACTGAT GAAGTCAGCT CAAAACACTG	1260
TTTTGAGGTT GTGGATAGAA CTGACGAAGT CAGCTCAAAA CACCGTTTTG AGGTGTGGA	1320
TAGAACTGAC GAAGTCAGTA ACCATACCTA CGGCAAAGTG AAGCTGACGT GGTTTGAAGA	1380
GAGTTTCGAA GAGTACAAGT AGGCTGAAAA GAATCCAACC ACAGCATGGA CTATTATATA	1440
GCAGATTGAA ATAAGATGAG AACAAATCGA TTGGGAAAGT AAAATTAATT TCTATAAATG	1500
TTTGTAGCAAT TGTTCGTAC TATTTTAGAT TCAGTCTATT ATAACACATT CAGAAAAGAG	1560
AAAAAAGTCT GTTGATTTTG ACCATCATAA AAAGACTGGC AATCCAGTCT CAAACATATA	1620
TTATAGAAAT TCTCCACTAA ATACTTTCAC GAATATTCAG AAGCATAACA AAGGCAACTA	1680
GAAGAAATAG CAATAAAACA AAGCTAACTG CCAGAGTTCC AAAGCTAGTA GCAATGGTTA	1740
CCAAAGCTAT TGTAAATAAG CTAGGTAAAA CAACCGTAAT GGCACCGATA GAGGATTGAA	1800
CTGCTCCCAT TGA CTCTCA GGTATTTGTT TAAAAACGAG TTCTTGCAAT CTAGGAGAGA	1860
GAACACCTGC GAAAAAGGCA TCCAAGGTAC TAAAGATGAG AATCCAGTCA AAACGAACTG	1920
TGGCAAATCC TACTAGAAGA AGCAACTGGA TGACAAGTGA GGCATAGAGA GCTGTTTTTA	1980
TGGAAATGGT ATGTTGCAGA TAGCCACTTA CAAGGCTTCC GACAATCAGG GCTGATAATT	2040
CTAGTGTGGC TAACAAGGCA AGAGATTGAC CAGTTTGTA AATCAAAAAG GGCTGGTTCC	2100

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TTAAAAATAG AGTGGAATA GGAACCGTAA CATTTATCAC TGCTTGA	2160
CTA GTAGAGATAA	
TAAACAAAAC CAAGAGCACC TTATTCATAT TCCATATCAA TTTCGATGAT TGGAGCAAAT	2220
GCTGGCAAAA GGATTTTACA GAGAGTCCTT CTTGATAGCT AATCGTTTTT TCTACTTTCA	2280
AGAGGTCAGT TTTTATGAAG AGGATACCTA AAAATGCGAT TAAAAAGGTA AGAGCGTTCA	2340
GTAAGGAAAT AAAGTGGATG GATAGAATGC CTAGTAAGAC TCCTCCTAGG ATATTACTGA	2400
<hr/>	
TTGTTTTTAC TAACTAACA GTTGACTGTT TAAAGCCAAT AGCTTCTGCC AGATGGTCTT	2460
GCCCAATAAT TCTAATGAAA ATCGGAGTGA GCATGGCGCC TGAAAAATAA CTCAATGTGT	2520
CAGACAAGAG GTTAATCAGA CAAATAAATG CTAAGTACAA CAAGGAGAAA GACTGCCCTG	2580
AAAGTGATAA AGACACTATA GAGTAAAGCA AAAATTTTGC AAACTAATG ACTGTGTATT	2640
TCAAGACACG ATGATGTTGA AAATCCGCCA AAATCCCGAG AAAGATTTGT AGAACTTGGG	2700
GCAGGGTTTC TGAAATCGTG ATGAGTAAAA TCGCCAAAGG GGCAAAAGAT GCATCTGCCA	2760
CATAATTCAG GAAGGCCAGA TAAAAATCG TATCCCAAG CGTTGAAATC CACTGGTTGA	2820
TAGTTAATTG CCTAAATCT CTATTTTGAA GAAATACTTT CATCACAAT CTTCTTAAG	2880
TTCAATGGG AATCTTTCCC CAAGGATAGA CCGCGATACT ACTAACAACC AAAATTACAG	2940
TAACATCAAA AGCTGACCAA TGCCATTGTA GACTATATGC AGTCCAATAG GCCAATAAAT	3000
TGACTTTGTC ATTCTAAATA AGACTGCAA TATAAGACCT CCACCCATAT AGAAGACAAA	3060
GTCTGTCAAG ACCCAACCGT GATTACTAAT GTGCGAGACC CCAAATAAAA CAGCGGAACC	3120
AAGTACATCT AGCCCCCATT TCTTTCCTTT TTCCAGAGCA GTCATCACTA ATCCACGATA	3180
AATCATGTCT TCAAAAATGG GACCTGCAAT CACAGGATAA AAAAAATACA TCAAAAATGC	3240
TGTAGCCCCT GTAAAAGTCG GAGCAGCATG TTGATAAGAA ATTTCAATTC GAGTAGGTGG	3300
GAAAAGAAAA AAGGTAACGA AATTCCAAAC AACAAAAGCA AGCAGAGCTA GGAAGGAATA	3360
GAAAAGATAG GATCCTTTAA ACTTTCTACT ATTGATTTTC TGCCATTTCC CCGACCAAAT	3420
CATAGCAATA AGAGCAAATA AAACCACAAG AAAATTCAAC ATCATATCCG ACAGATAATA	3480
GGCAAAGTCA GATAGCCCAG TAACAAGGTC GCTGCGTAAA ACTAGAACAC TGAACCTCTG	3540
GTCAGCAATA ACTAGTAGAA AAATATAAT AAAGTAGCGG TGTGAGATTA TCTTTTTCAT	3600
ATATCACCTT TCTAATATCC AAATACCAAT AAAGTAACAA TGAGTAAGAA ACTATTCCAT	3660
GAAGCATGCA GAGCTATAGC CCAATAGATG GATCGGGTGT AGCGAAACAT CATACAAAAT	3720
ATCAAGCCCC TTCCAAAATA CTTTATGAAA TCTGTCGTTA TCCAACCATA CTGCAAAACA	3780
TGCATAGCGC CAAATATGGC AGCGGAAACA AGAACATCAA GATAGTATCT CTTAACTTTA	3840

1028

GATAAACTTG TCATCAAAAG ACCACGACAA ACAACCTCTT CTGATACAGG TGGGATAATA	3900
CTAGTATAAA GTATTGCGGT AACAAAATAG CTAATTCCTG TTAAATTGGT GGCTACTTCT	3960
ACGACTGTAC TTCCATTCTG GGTACGAGGA AAGATATAGG TTGTTAGATT TGCCACACAG	4020
AACAATAAGA AAAAAGAAAG AAGGAAAACA CCCAGGTAAG ACCAACGAAA CTGGAAACGA	4080
CCCACTCTT TCCAATGTTT ACTTTTGACA AAAGCAATTG TAGCTATAGT TCCCAGAATA	4140
AGTACCAATA AAACCTGGAA CACATAGTAC ATATTATCAG ACAAAGCAAC CATAAAATCT	4200
AAGTCTGATG TGACATTAAA AATGAGGTAA TAAGTCAAAA TCAACAAGCC AGTTGCTAGG	4260
TGAAATTTCA CTTCTTTCAT TTTCTTCATC CTATTATCTC CTATAAGAGC CTATCTTCTA	4320
CGGCGGCCAA ACAATCCATC TGCTAAATCT ATAGTCCAAT CAAAAGCTCC ACGATTAGGA	4380
CTCATCCCTT GATTGCCCCA ACCAGGGTAA ATTCTGCGGA CGCCCCAACC AGATATACCA	4440
CTTCTTCCAC CACCTCCCAT AGAATTTACG AGGTGCTCTC CTCTAACATC TTGCAACTCA	4500
GCTTCTGTCA ATTCCATTGT TTCTGCAAAT TGTAATTTTA ACATCTTTTA CACTCCTTCA	4560
ATTATCTTCA TTTGTAAACC ACTTCTGCGA CCTAGGATTG GCTTCAAGTG CTTTACAAGT	4620
ACAGTATAAC ACGAACATTG GCTTATTTTA GAAATCGCA TATTTGATAT TTTTCTTAT	4680
AGAAATTTCA GATTGCGAT TTTGGTGAAT TTGATTACTT CTCTGGTATA ATAAAGTTAC	4740
TACTAATGAG GAGTGGAGAA ATATGAAGAA ACAAATTTTA ACATTATTGA AA	4792

## (2) INFORMATION FOR SEQ ID NO: 157:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2156 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 157:

CCGTTCTCGG CGACGGCCAT CTGATGAAGC TATTTATGAG GGAACTGGC AAGCTGGAGA	60
GTCAGAGTAT CTAGTCTTTC ACCGATTGCT GTGGCAGCAG ATGTGCAGGG AAAAGGAGTT	120
GCTCAAACCT TCTTAGAGGG CTTGATTGAA GGTTTTGATT ATCTTGATTT TCGCTCAGAT	180
ACGCATGCTG AAAACAAGGT TATGCAACAT ATTTTTGAAA AACTTGGTTT TAAACAAGTC	240
GGTAAGATGC CAGTAGATGG CGAACGCTTG GCCTATCAAG AATTAAAGAA ATAATGCAAA	300
AGAAGTATGT AAAATCCTC TACTCCTCAC CAATTGGTAT TCTATCACTT GTAGCTGATG	360
ACCATTTATTT GTATGGAATT TGGGTTGAGG AGCAGAAGCA TTTTGAGAGG GGAAGTAGG	420
ATGAAACGAT AGAAGAAGTT GTTAGTCATC CTATTTTAGA CCCAGTTATT GCTTGCTTAG	480

1029

ATGATTACTT TAAAGGCAAG CCTCAGGATT TATCCAACCTT GCTCTTGGCG CCAATCGGAA	540
CGAATTTTGA AAAGAGAGTT TGGGACTATT TACAGGGCAT TCCTTATGGT CAGACACTGA	600
CCTATGGACA AATTGCTCAA GACCTGCAAG TGGCTTCTGC TCAAGCAATT GGTGGAGCAG	660
TGGGACGCAA TCCTTGGTCT ATCCTAGTAC CTTGTCATCG TGTGTTGGGA GCAGGCAAGC	720
GTCTGACAGG TTATGCTGCA GGAGTGGAAA AGAAAGCTTG GCTCTTGGAG CATGAAGGAG	780
TAGATTTTAA AGATAGAAGC AATAGAAGGA GAAGCACATG TTAGAATTTA TCGAATACCC	840
CAAATGTTCA ACTTGTA AAA AAGCAAAACA AGAATTAAAT CAATTAGGTG TGGACTATAA	900
AGCCGTCCAT ATCGTGAAG AACACCTAG CCAAGAAGTC ATTTTGAATT GGCTAGAAAC	960
CTCAGGATTT GAATTGAAGC AATTTTCAA CACCAGTGGT ATCAAATACC GTGAATTAGG	1020
GCTAAAAGAT AAGGTAGGAA GTTTGTCAA CCAAGAAGCG GCTGAGTTGC TAGCAAGTGA	1080
CGGTATGTTG TTA AACGGC CCATTTTAGT AGAAAATGGA ACTGTTAAGC AAATCGGTTA	1140
TCGAAAATCT TATGAGGAAC TGGGACTGAA ATAGTTTTTA TCTATCTCTT TGATAGATAA	1200
AATATATAAC TTCCCTGTTT CAAAGTATGA TAACTAGTA GGTAGACAAA GTCTGTATCT	1260
GACCGTAGCA AATAATTTCA TTGACGGCAG AAGCATGGTA GCATGAATCA TTATCAGAAG	1320
AGGATGTTTT TATGAATGTT ACAACGATTT TAGCATCAGA TTGGTACCAA AACTTGATGC	1380
AATTGATTCC GGATGGCAAG CTGTTTAGCC TACGTTCCGT CTTTGATGGA ATCCCTAGAA	1440
TTGTCCAACA ACTTCCAACA ACAATTATGT TGACAATTGG TGGTGCCCTT TTTGGCTTGG	1500
TTTTGGCGCT TCTTTTGCC ATTGTGAAGA TCAATCGTGT CAAGATTTTA TATCCCTTGC	1560
AGGCCTTCTT TGTTAGTTTC TTAAGGGA CACCGATTTT GGTGCAACTC ATGTTGACCT	1620
ACTACGGAAT CCCTTTGGCT TTGAAAGCCC TCAATCAGCA ATGGGGAAC TGTCTCAATA	1680
TCAATGCGAT TCCAGCTGCA GCTTTTGCGA TTGTCGCCCTT TGCCTTTAAT GAGGCAGCTT	1740
ATGCTAGTGA AACCATTCTG GCAGCCATTC TCTCAGTTAA TCCTGGTGAG ATTGAGGCGG	1800
CACGCAGTCT GGTATGACC CGAGCGCAAG TTTATCGACG AGTGATTATT CCTAATGCAG	1860
CGGTGGTAGC TACTCCAACC TTGATTAATT CCCTCATCGG TTTGACCAAG GGAACATCTC	1920
TAGCTTTTAG TGCGGGTGTT GTGGAAGTCT TTGCCCAAGC TCAGATTCTA GGTGGAGCTG	1980
ATTATCGCTA TTTGAACGC TTCATCTCCG TTGCCCTTGT TTATTGGGTA GTCAATATCG	2040
GAATTGAAAG CTCGGTCTG TTCATCGAGA GAAAATGGC TATTTCTGCA CCTGATACAG	2100
TGCAACAGAT GTGAAAGGAG ACCTTCGTTA ATGATTAAGA TTTCGAATTT AAGCAA	2156

(2) INFORMATION FOR SEQ ID NO: 158:

1030

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 3140 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 158:

GTATCTCTAC ACATGTCTTC AATCGATTTT GTTGTCTCTCC AATTTAATTC CTTATATGCT	60
TTGTCTGCAT TTGCATAACA AGTTGCAACG TCTCCTGAAC GTCTTGGAAC TATTTTATAA	120
GGAATAGGGA TCTTATTAAC ACTTTCAAAT GTATTTACAA GTTGTAATAC ACTAGTGCCT	180
TCTCCCAGC CTAGGTTATA GATATAAACA TCTGTTTTTT CAGATACTTT TTCTAAAGCT	240
TTTATATGTC CTATTGCTAA ATCTACTACA TGGATATAAT CACGCACACC AGTACCATCA	300
AGCGTATCAT AATCATTTCC GAACACACTT AGCTCTGATA GCTTACCTAC CGCTACTTGT	360
GCAATATAAG GCATCAAGTT GTTAGGAATT CCTGAGGGAT CTTCCCCAAT CAAACCAGAC	420
TCATGAGCAC CAATTGGATT GAAATAACGA AGCAACGCAA TACTCCATTG TGAATCTGCC	480
ACATGAACAT CTTTTAAAAT TTGCTCAAGC ATCACTTTTCG TATACCCATA AGGATTGTGC	540
GCACTTGTTC GCATCGTCTC AATTAGAGGT GACTGATTGT TAATTCCATA TACAGTCGCA	600
CTTGAAGAAA AGACAATCTT TTTAACATTA AATTCTGACA TCACTTCAAC AAGTGCCAAT	660
GTACTCATAA TATTATTTTT GTAGTACATC ACAGGCTTTT GCACGGATTG TCCGACAGCT	720
TTATAACCTG CAAAATGAAT TGCAGCATCA ATCGATTCTT GTTCAAATAC CTTTCTCAAT	780
GCTTGTTTAT CACAAACATC TAATTCGTAA AACACGGGAC GTATTCCTGT AATTGCTTCA	840
ATACGGTCTA GCACCAAGAT GCTAGAGTTC GAAAGGTTGT CGACAATGAT AACTTCCTTT	900
CCTAAATTTA GTAATTCTAC TACGGTATGG CTACCAATAT AACCAGCTCC GCCTGTTACC	960
AATATTGCCA TCTGGGTTTC CTCCTAATTA ATTCCAACCG ACTTAACAAA TCTCATAAAC	1020
GCTTCATGCC CAGACGGTGT ATTCTTATAA ACTCCTGCAT CTTCCAGAAC TCTCGCAAC	1080
ACTTGTCTG CTTCGTGTG AACTACGCTA TTAACCTCTT CTTTATTAAT GCGAGGATAT	1140
TTTTCTTTCA ATTGGTCGGC CCATTCTAAA TGATAATCCG CAATTGCATT ATCCTCTCCT	1200
AAAAGATATT TTCCAACCTC TTCTAACTCT GGTTCAAAC GAGGTGGTAA TATCGCAAGT	1260
CCCATCACTT CGATTAAACC GATATTTTCC TTTTAAATAT GTTGATACATC TTGATGAGGA	1320
TGGAAAACAC CATCTGGGTA TTGTTCACTA GTATGATTAT CTCTTAGAAC AATATCTAAT	1380
TCGTATCTCC CGTCCACTTT ACGAGCAATA GGAGTCACCG TATGGTGTGG GACATCTTCA	1440
GTCATAGCAA TGATGTCTAC TTCTAAATCT GAATATTCTC TCCACTTATT TAGAATTTTA	1500

1031

GTAGCTAAAT CTAACAAGCG ATTTTATTT TCACTTTGTA ACCTAATTAC TGACATTGGC	1560
CATTTTACAA TACCAGCATT AACATCCTCA AAGTCTTTAA AACAAAATTC ACTCTCAAAT	1620
TTTGCTTTTT CCATTGGGAA AATATGTTTC CCTCCCTGGT AGTGGTTATG ACTAAGAATG	1680
GAGCCTCCTG AGATAGGAAG ATCAGAATTT GAACCAGCAA AATATCCTGG CAAAATATCA	1740
ACAATCTCCA ATAATTGTTC AAATGTTTGA GAGGTAATAG CCATTGGTAC ATGTTGACTA	1800
TTCAAAAATA TCGCATGCTC ATTAAAGTAT GAGTAGGGAG AATACTGGAA TCCCCATACT	1860
TCGTCAACCA GTTCAACCG AATAATTCTA TGATTGGAAC GTGCTGGATA ATTTATTCCG	1920
CCCTGATATC CTTCAATTTT CATACATAGT AAACATTTGG GATAATTAGT TGCTTTTACT	1980
AAATTTTCAG CAGCAATTGT TTTTGGATCT TTTTCGGGTT TTGACAAATT TATCGTAATC	2040
TCTAGCTCTC CGTATTTAGT TGATGCTCGA AACTCAATAT TCTTAGCAAT AGCAGAAGTT	2100
TTAATATAAT CACTATCTTT ACTTAACTTA TAAACTCTT CAACTGCTTC TTGAGGTGAT	2160
ATATCATATG AACTCCAAAA AATATCATTT AATCGACTAG GTAAAGGAAC TATGAAATTC	2220
ATTAACTCTG CTCCTAAACA TTCCTTTTCC TCGATTAAAT CTTTAATTTT ACCGTTTTTT	2280
AAGGCGATTT CCACTAAGTA ATCTTTTATT TGTTTCAGGT CATTTTCATC GGAAATGCCA	2340
TCAATCCCTT CCTCACCTAT TAACGCTAGT ACTCTATTTT TCACATATAT TTTGTCAATT	2400
TCATTATACA TTCCGTATTC AATTACTCTA TCAACAAAAT TATCAATAAT TGTTTTCATA	2460
TATTTTTCTT TCTAATTTAT GTTCCCATAT TTTCTATACA TTATCCATTT ATAAATTGCT	2520
TGCGTAGTAT GAGCAATTTT ATCAAGGTGA TGAATAATAT CTAAAGCACT AATTACTTCA	2580
GAAACGTTCC CATCATCTTC AAATATGTAA TTCATTATTT TCTTTTCCAT ATTTATACTA	2640
AGCTCTTCTA TCTCATCTG TTTTGTGATA ACAACCATAT CTAAACATCC AGATTGTTCC	2700
TCTCTATAAC AAGATATAGC CCTATTCATA TGCAGTCCGA TAACTTCATG AAGTATTTTT	2760
ATTTTGTAAA TAATTTTCTT CAAAATTTCA TTATTTTGAA GAATCTGTAG ATTTTTTAAA	2820
ATTTCAACAA TTCTATCCCC AATACGTTCA ATGTCAGTTG ATATTTTAT TACACTAATA	2880
ATTCTTCTTA AGTCATATGA AACAGGATGT TGTAAACAAA TTAATCATA TCCTTTTTTA	2940
TCAATATTTA GAACTGACTC ATTTATGATT AAATCTTCTT TAATCAATTC TACTCGTTCT	3000
TCATTTGATA AATATTCAA TAACTTCTCA TATTTATCAA GCACAGATAC CCAAATGGTC	3060
TCTAAATTAT TTGATAATTC TATAATTTCA TTTTCTAAAT ATAACCTTAA CATTTAGGTA	3120
CCTCTTCTTA ACAAAGTTTCG	3140

(2) INFORMATION FOR SEQ ID NO: 159:

1032

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9048 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 159:

CCGGATGATT TCCTGGTCAG ATAGGGGGAA AGTGACTTCC TCAGCAATCG CGCGTAGAGT	60
AGGATTCCCT TCACGGATAA TATCGTTCAT ATCAATTAAG TGAGCAGCTT TTGTAATACG	120
TTCTATTGCA GACATTTTCT CTCCTTATAT TATGTTTAGT GCAGTTAGCT ACTGCCAAAG	180
CCCAAGTGGT ATACTTGGA TAAGCCACTG TGGATTAGTT CATTTTCTTT CATTACCTCT	240
ACATGATATC ACAAATGAC AAGAATTGAA AGCATTATGG CATTTAGGAT TTATAGAAAA	300
TAGATAGGAA GTTCAATTCA ATTGTGAAAG AAATACTTAT CTGTGATATA ATAAAAAGAA	360
AAGGCTTGCA TAAGAAAGTA GGGAGAACGA AGATACAAAG AAGACAAAAT CGAAATCAGG	420
GTGGTTTAGC TTTTCGTTTT ATGAAGGGCT TGGTAAACTT TTTAGGAGTT ATCGCAAGTG	480
GAGCAATAAG GGATTGTGG CGATACTCTT GCTAGCAGTT GGTATTATCA TGGGCTTGGT	540
CTTGTTGTTT GAAAGCTTCC AAGGAATCCC TTGACTAGTC AAAAACGAGA TACTATTTCT	600
CAAGAGGGGA CTAAGCAAAA GTCTCAGGAG TAGGAAGAGG AAAAACTGC CAGAATTATG	660
GCCACGGGG ATTTGCTCTA CCACGATGGA CTTTTCTTTT CAGCTAAAAA AGAAGACGGT	720
ACCTATGACT TTCATGAAAA TTTTGAGTAT GTGACTCCTT GGCTCAAGCA AGGGGACTAA	780
GCAGCAGATT TAGCTATTGG TGATTTTGAA GGAACCATTA ATAAGGATCA TTATTTAGCG	840
GGTTATCTTC TCTTTAATGC TCCTGTTGAA GTTATGGATG CTATTAAGGA GGCAGGTTAT	900
CATGTGCTGG ATTTAGCTCA TAATCATATT TTGGATTTCG AAATTGAGGG AGTTATTICA	960
ACGGCCGATA TTATTGAGAA AGCTGGAATC ACTCCAATCG GAGTTTATAC GCACGAACCA	1020
CGTGATCAGG CTCGCTGGT CATTAAGGAA GTGAATGGTA TCAAGGTTGC ATTGTTAGCC	1080
TATTCCTATG GTTCAATGG AATTGAGCAG TATATTTCTC AGGAAGACTA TAATCGTTAT	1140
CTTTCAGATT TAAACGAAGA TAAGATGAAG GTTGAAATTG AACGGGCAGA GAAGGAAGCA	1200
GATATCACCA TTATCATGCT TCAGATGGGT GTTGAGTATC GATTGGAACC AACTGAAGAA	1260
CAAAAAGCTC TTTATCACAA GATGATCGAT TTGGGAGCGG ATATTATCTT TGGAGGGCAT	1320
CCTCACGTTG TTGAACCATC TGAAACGGTT GAAAAAGATG GAGATAAGAA ACTCATTATC	1380
TATTAAATGG GGAACCTCAT TTCCAATCAA CGAATTGAAT CTATGGGAGA TGAAGAGAAT	1440
GCTAAGTGA CTGAACGTGG TGTTCATG GATGTCACCA TCAAGAAGAA GGATGGAAAA	1500



1033

ACAACTATCG GAACAGCTAA AGCTCATCCT ACTTGGGTCA ATCGAACACC AAAGGGAACC	1560
TTTTCAACCAG AAGGATATCC CTTGTATCAT TACCAAACCT ATATTTTGA AGATTTTATA	1620
GAGGATGGCA GTCATCGTGA CCAGTTAGAT GAAGCGACTA AGGAACGAAT TGATACAGCC	1680
TATAAAGAAA TGAATGAACA TGTGGGATTG AAGTGGTATT AGCTTGAATC CAGAGGAAAAG	1740
TAAATGATGA TTAAGGTAAT TGCGACAGAT ATGGATGGGA CCTTGCTGGA TGCTAGAGGT	1800
CAGCTTGATC TCCCACGATT GGAAAAGATT TTAGATCAGT TGGATCAAAG GGGCATTTCGT	1860
TTTGTCAATG CGACGGGCAA TGAAATTCAC CGCATGAGAC AACTACTGAG TCCCTTGGTG	1920
GATCGAGTGG TTCTGGTTGT TGCTAATGGC GCTCGTATTT TTGAAAACAA TGAATTGATT	1980
CAGGCTCAGA CATGGGATGA CGCCATTGTC AACAAGGCTT TGACTCATTT CAAGGGTCGA	2040
GCGTGTCCAG ACCAGTTTGT TGTAACGGGG ATGAAGGGTG ATTTTGTCAA GGAAGGTACG	2100
ATTTTACAG ATCTTGAAAG TTTTATGACT CCAGAAATGA TTGAAAAATT CTACCAACGG	2160
ATGCAATTTG TGGATGAATT AACATCTGAC CTCTTTGGTG GTGTGCTCAA GATGAGCATG	2220
GTGTTGGTG AGGAACGTTT GAGTTCGGTT TTGGAAGAAA TCAATGCTCT CTTTGATGGC	2280
CGTGTCGAG CTGTATCCAG TGGCTATGGT TGCATTGATA TCCTCCAAGC TGGGATTCAT	2340
AAAGCATGGG GCTTGGAGGA ATTACTCAAG CGCTGGGACT TGAAATCCCA AGAAATCATG	2400
GCTTTTGGTG ATAGTGA AAA TGATGTTGAA ATGCTTGAAA TGGCTGGAAT TGCCTATCGG	2460
ATGGAAAATG CTGATGAGAA AGCCAAAGCT GTGGCGACTG CTCTAGCACC AGCCACAGC	2520
CAAGGAGGAG TTTATCAAGT CTTGGAAAAC TGGTTAGAAA AAGGAGAAATG AAGTGGCAGT	2580
ACAGTTATTA GAAAATTGGC TCCTAAAGGA ACAAGAAAAA ATTCAAATA AGTATCGTCA	2640
CCTAAATCAC ATTTCTGTTG TAGAACCAAA CATCTTTTTT ATTGGGGATT CCATTGTCGA	2700
GTATTATCCT CTACAGGAGC TATTTGGGAC TTCAAAGACG ATGTGCAATC GAGGAATTTCG	2760
TGGCTATCAG ACAGGACTGT TACTAGAGAA CCTTGATGCT CATCTATATG GTGGAGCAGT	2820
AGATAAAATT TTTCTTCTGA TTGGGACAAA TGATATCGGA AAGGATGTTT CTGTGAATGA	2880
GGCTCTCAAT AATCTCGAAG CTATCATTCA ATCCGTTGCT CGCGATTATC CATTGACAGA	2940
GATTAAATTG CTTTCCATTT TGCCGTGCAA TGAGAGAGAG GAGTACCAGC AGGCAGTCTA	3000
TATCCGCTCG AATGAAAAA TTCAGAACTG GAATCAAGCC TATCAAGAGC TTGCATCTGC	3060
CTATATGCAG GTGGAATTTG TGCCAGTATT TGATTGTTTG ACAGACCAAG CAGGCCAACT	3120
CAAAAAAGAA TATACAACTG ATGGACTGCA CCTCAGTATT GCTGGTTATC AGGCTTTGTC	3180
AAAATCCTTG AAAGACTATC TTTACTAAAT AGCTAAATAA TGTTAAATTT GAGCATAATA	3240

1034

TCTTGTA AAAA	AATTCTAAAA	TCCTTTAAAA	TAAAAAGTGA	CGGAGGAATT	TATGAATGTA	3300
AATCAGATTG	TACGGATTAT	TCCTACTTTA	AAAGCTAATA	ATAGAAAATT	AAATGAAACA	3360
TTTTATATTG	AAACCCCTGG	AATGAAGGCC	TTGTTAGAAG	AATCGGCCTT	TCTGTCAC TA	3420
GGTGACCAAA	CGGGTCTTGA	AAAGCTGGTT	TTAGAAGAAG	CTCCCAGTAT	GCGTACTCGT	3480
AAGGTAGAGG	GAAGAAAAAA	ACTAGCTAGA	TTGATTGTCA	AGGTGGAAAA	TCCCTTAGAA	3540
ATTGAAGGAA	TCTTATCTAA	AACAGATTCT	ATTTCATCGAT	TATATAAAGG	TCAAAATGGC	3600
TACGCTTTTG	AAATTTTCTC	ACCAGAAGAT	GATTTGATTT	TGATTCATGC	GGAAGATGAC	3660
ATAGCAAGTC	TAGTAGAAGT	AGGAGAAAAG	CCTGAATTTT	AAACAGATTT	GGCATCAATT	3720
TCTTTAAGTA	AAATTTGAGAT	TTCTATGGAA	TTACATCTCC	CAACTGATAT	CGAAAGTTTC	3780
TTGGAATCAT	CTGAAATTGG	GGCATCCCTT	GATTTTATTC	CAGCTCAGGG	GCAGGATTTG	3840
ACTGTGGACA	ATACGGTTAC	CTGGGACTTA	TCTATGCTCA	AGTTCTTGGT	CAATGAATTA	3900
GACATAGCAA	GTCTTCGCCA	GAAGTTTGAG	TCTACTGAAT	ATTTTATTCC	TAAGTCTGAA	3960
AAATCTTCC	TTGGTAAAGA	TAGAAATAAT	GTTGAATTGT	GGTTTGAAGA	AGTATGAAGT	4020
GGACCAAGAT	TATTAAAAAA	ATAGAAGAAC	AAATCGAGGC	AGGGATTTAT	CCCGGAGCCT	4080
CTTTTGCGTA	TTTTAAGGAC	AATCAATGGA	CAGAGTTCTA	TTTAGGCCAG	AGTGACCCAG	4140
AGCATGGCTT	GCAGACTGAG	GCAGGACTAG	TTTATGACCT	AGCTAGTGTC	AGCAAGGTTG	4200
TTGGGGTTGG	CACAGTTTGT	ACCTTCTTGT	GGGAAATAGG	TCAATTAGAT	ATTGATAGAC	4260
TGGTAATAGA	TTTTTTACCT	GAGAGTGATT	ATCCAGACAT	CACTATTTCG	CAGCTCTTGA	4320
CTCATGCAAC	AGACCTTGAT	CCTTTTATTC	CTAATCGTGA	TCTTTTAACA	GCCCCGAAT	4380
TAAAGGAAGC	GATGTTTCAT	CTCAACAGAC	GAAAGTCAGC	AGCCTTTCTT	TATTCGGATG	4440
TCCATTTTTT	GCTGTTGGGC	TTTATTTTGG	AAAGAATTTT	TAATCAAGAT	TTGGATGTGA	4500
TTTTAAAGGA	TCAAGTCTGG	AAACCTTGGG	GAATGACGGA	AACTAAGTTT	GGGCCAGTTG	4560
AGCTTGCTGT	TCCAACAGTT	AGAGGTGTAG	AGGCAGGCAT	AGTGCAATGAT	CCCAAGGCTC	4620
GTCTCCTGGG	TAGACATGCT	GGGAGTGCTG	GTTTATTTTC	GA CTATAAAG	GATTTACAAA	4680
TCTTTT TAGA	ACACTATTTA	GCAGATGATT	TTGCAAGAGA	CTTAAATCAA	AATTTTCTC	4740
CTTTGGATGA	CAAGGAACGT	TCTTTAGCAT	GGAATTTGGA	AGGAGATTGG	CTAGACCATA	4800
CGGGCTATAC	AGGTACCTTT	ATCATGTGGA	ATCGTCAGAA	GCAAGAAGCC	ACTATTTTCC	4860
TATCGAATCG	TACCTATGAA	AAGGACGAGA	GAGCTCAATG	GATATTAGAC	CGCAATCAAG	4920
TGATGAAC TT	GATTCGCAAA	GAAGAGTAAG	GAGAGACATG	TCAAATAGTT	TAAAAGGGAC	4980
TTTACTAACA	GTTGTGGCTG	GTATTGCTTG	GGGGTTGTCA	GGAACGAGTG	GCCAATACCT	5040

1035

AATGGCACAC GGAATTTCCG CTCTGGTCTT GACTAACTTG CGTCTTTTAA TCGCTGGTGG	5100
AATTCTCATG CTCTTGGCTT ATGCTACTGC AAAGGATAAA ATACTGGTCT TTTTAAAGGA	5160
TAGAAAGAGT TTGCTGTCTC TTCTTATTTT TGCTCTGATT GGTCTTTTTC TCAACCAATT	5220
CGCCTATCTG TCTGCTATTC AGGAGACCAA TCGGGGAACA GCGACGGTGC TTCAGTATGT	5280
TTGTCCTGTC GGAATTTTAA TTTATAGCTG TATCAAGGAT AGGGTGGCAC CGACACTGGG	5340
AGAGATAGTT TCCATCATAT TCGCCATCGG AGGAACCTTC CTGATCGCAA CACATGGGCA	5400
GTTGGACCAG TTATCCATGA CACCTGCTGG TCTGTTCTGG GGTCTCTTTT CTGCCCTGAC	5460
TTATGCTCTG TATATCATTT TACCCATAGC CTTGATTAAA AAGTGGGGGA GCAGCTTGGT	5520
CATTGGTGTG GGAATGGTCA TAGCAGGTTT GGTGCGCCCTT CCTTTTACAG GGGTCTTACA	5580
GGCCGATATC CCGACTAGTC TTGATTTTCT CCTTGCCTTT GCAGGCATTA TCCTTATCGG	5640
GACTGTCTTT GCCTATACAG CTTTCCTTAA AGGAGCCAGT CTGATAGGAC CGGTCAAGTC	5700
AAGCTTGTTG GCTTCAATTG AGCCAATATC GGCGATTTTC TTTGCCTTCT TAATAATGAA	5760
TGAACAATTT TATCCCATTG ATTTTCTTGG TATGGCAATG ATATTGTTT CTGTAACTTT	5820
GATTTCTTTG AAAGATTTAT TCTTAGAAAA ATAAAAAGA CTCTTTGTCC GTGACAGAGA	5880
GTTTTTGCGT GGAATCTAA TTATTTTCAA GATAAAATTC AAAGCGTTCG CCTACATATT	5940
GACTTTTTAC GTATTCAAAA GCAGTACCAT CTTCTAGGTA GGAAACCTGG GTCAATCCAA	6000
GAATAGCATG TCCTTTTTC AACTCCAAAT AGTGGGCAAT CTTTCTTTA GCAAGGCGAG	6060
CATAGATGGT CTGTTGAGAT TTGCCGATAC GATAGCCATG TTTTTCGAAG GTTTGGAAGA	6120
AATGACTGGT GATTTCTTCT TTTTAAAGT CCTTAATGAA TTTTTCAGGA ATAGAAGCAA	6180
CTTCATAAAC TAGGGGAACT TGGTCGGCAT AGCGGACCCG CTCCATTCGG ATAATATTGT	6240
CCGTTGGAAA AATTCCTAGC TTGGCAACTT CTTGCTCATT GGAATGGTT TTTTGTAGG	6300
AAATGAGCTG GCTAGAGGGA ACTTTACCTT GGGATTTGAC AATTCAGTA AACTGGTTG	6360
TCCCTCGCAT CTTTCTTGT ACTCGAGTAC TGGAAACAAA GGTGCGGCTT CCTACACGGC	6420
GCTCTAAGAC GCCTTCTTCG ACTAATAGAG ATACGGCTTG GCGGAGGGTC ATGCGACTGA	6480
CCGCAAACTG CTCAGCTAAA TCTCTTTCAC TGGGAAGCCT CTCACCAATA GCCCAACGGT	6540
ACTCGTCAAT ATCCTTTTTT ATCTGATCAT GGAITTTTAT ATAAGCAGGT AGCATATTTT	6600
TCACTTCATT TCTATCTTTT CTCTATTGTA CCCCAATAAA CTAGAAAAAG TCAAACTTCG	6660
CCTTGTTTAG TTGGTAATTC GCCCTTATTT GTGATAGAAT ATTGAGAAAA GATATTTCTT	6720
TTGAGAAAGG AAAAAGATGA GCAACATTC AACTGATTTG CAAGATGTAG AAAAAATCAT	6780

1036

CGTATTGGAC TATGGTAGCC AGTACAACCA GCTGATTTCA CGCCGTATCC GTGAGATTGG	6840
TGTTTTTTCA GAACTAAAAA GCCATAAAAT TTCAGCTGCT GAAGTTCGTG AAGTCAATCC	6900
TGTAGGAATT ATTCTATCAG GTGGTCCAAA TTCTGTATAT GAAGATGGTT CATTTGATAT	6960
TGACCCAGAA ATCTTCGAAC TCGGAATTCC AATTTTGGGA ATCTGTTATG GTATGCAGTT	7020
ATTGACCCAT AAACCTGGAG GAAAAGTTGT TCCTGCAGGT GATGCTGGAA ATCGTGAATA	7080
CGGTCAATCA ACCCTAACTC ACACACCATC AGCGCTTTTT GAATCAACAC CTGATGAACA	7140
GACTGTTTTG ATGAGCCATG GTGATGCGGT TACTGAGATT CCTGCTGACT TTGTTCTGAC	7200
AGGTACATCA GCTGACTGCC CATACGCAGC CATCGAAAAC CCAGATAAAC ACATTACGG	7260
TATCCAATTC CACCCAGAAG TTCGTCATTC TGTATACGGA AATGATATCC TTCGTAACCT	7320
TGCCCTTAAC ATTTGTAAGG CTAAAGGTGA CTGGTCAATG GATAATTTCA TTGACATGCA	7380
GATCAAAAAA ATTCGTGAAA CCGTCGGTGA TAAACGTGTC CTTCTTGGTC TATCAGGTGG	7440
TGTTGACTCA TCTGTCGTTG GGGTCTTCT CCAAAAAGCG ATTGGCGATC AATTGATCTG	7500
TATCTTCGTA GACCACGGTC TTCTTCGTAA AGGCGAAGCT GATCAAGTTA TGGACATGCT	7560
CGGTGGTAAG TTTGGTTTGA ATATCGTCAA AGCAGACGCT GCTAAACGTT TCCTTGACAA	7620
ACTTGCTGGC GTTTCTGACC CTGAACAAAA ACGTAAAATC ATCGGTAACG AGTTTGTCTA	7680
TGTATTGAT GACGAAGCAA GCAAGCTCAA AGATGTGAAA TTCCTTGCTC AAGGTACTTT	7740
ATATACAGAT GTTATCGAGT CTGGTACGGA TACAGCTCAA ACTATCAAGT CACACCACAA	7800
CGTGGGCGTC TTCCAGAAGA TATGCAGTTT GAATTGATTG AACCACCTCAA TACTCTTTAC	7860
AAGGATGAAG TTCGTGCTCT TGGTACAGAG CTTGGTATGC CAGACCATAT CGTATGGCGC	7920
CAACCATTC CAGGACCAGG ACTTGCTATC CGTGTCTATG GTGAAATCAC TGAAGAGAAA	7980
CTTGAAACCG TTCGTGAATC AGACGCTATT CTTCTGTAAG AAATCGCTAA AGCTGGACTT	8040
GACCGCGATA TTTGGCAATA CTTCACTGTT AACACAGGCG TTCGTTCACT CGGTGTTATG	8100
GGTGACGGTC GTACGTATGA CTACACGATT GCAATCCGTG CTATCACTTC TATCGATGGT	8160
ATGACTGCTG ATTTTGCCAA AATTCCATGG GAAGTACTTC AAAAAATCTC AGTACGTATC	8220
GTAAATGAAG TGGATCATGT TAACCGTATC GTCTACGATA TTACAAGTAA ACCACCTGCA	8280
ACAGTTGAGT GGGAATAATC GCAAAAAAAT TAAAAGCTTT GTAAAATCAA CGGTTACAGA	8340
GGATTAAAAA CTGTAACCTG GATTAAAAAG GGAACATTG CTAAAAAGAA TAAATTGAAT	8400
AATAGTTCCA AGTGGTTTAC ATTTGGACAA AAAATTAGAC CGTAGTTTTT AAGCTGCGGT	8460
CTTTTGATAT ATATAATGAG AATTAATGGC TCTTTGTCAA CTGTAGTGGG TTGAAGTCAG	8520
CTAAGCTCGA GAAAGGACAA ATTTGTCCT TTCTTTTTTG ATATTCAGAG CGATAAAAAAT	8580

1037

CCGTTTTTTG AAGTTTTCAA AGTTCGAAA ACCAAAGGCA TTCCGCTTGA TAAGTTTGAT	8640
GAGATTATTG GTCGCTTCCA ATTTGGCGTT AGAATAGTGT AGTTGAAGGG CGTTGACGAT	8700
TTTCTCTTTG TCCTTTAGAA AGGTTTTAAA GACAGTCTGA AAAAGAGGAT GAACCTGCTT	8760
TAGATTGTCC TCAATGAGTC CGAAAAATTT CTCGGGTTCC TTATTCTGAA AGTGAAACAG	8820
CAAGAGTTGA TAGAGCTGAT AGTGATGTTT CAAGTCTTGT GAATAGCTCA AAAGCTTGTT	8880
TAAAATCTCT TTATTGGTTA AATGCATACG AAAAGTAGGG CGATAAAAAT GTTTATCGCT	8940
GAGTTTACGA CTATCCTGTT GTATGAGCTT CCAGTAGCGC TTGATAGCCT TGTATTTCATG	9000
AGACTTTTGA TCCAATTGAT TCATGATTG AACACGCACA CGACTCGG	9048

(2) INFORMATION FOR SEQ ID NO: 160:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 10399 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 160:

GTACCTTTAT TGATGAATGG ACTGTTTAAA TCAGTAGCAC GCCAACCAGA TATGCTTTCT	60
GAGTTTCGTA GTTTGATGTT TTTAGGTGTT GCCTTTATTG AAGGAACTTT CTTTGTAAC	120
CTTGCTTTCT CATTTATTAT CAAATAAATA CATGGAACGA GAAGAAAAGG GAGGATTTTA	180
GATGGAAGAA AGTATTAATC CAATCATCTC TATTGGTCCT GTTATCTTCA ATCTGACTAT	240
GTTAGCCATG ACTTTGTTGA TTGTGGGAGT TATTTTTGTC TTTATTTATT GGGCAAGCCG	300
CAATATGACC TTGAAACCCA AAGGAAAGCA AAATGTACTT GAGTATGTCT ATGACTTTGT	360
TATTGGATTT ACAGAACCTA ACATTGGTTC GCGCTACATG AAAGATTACT CACTCTTTTT	420
CCTTTGTTTA TTCCTTTTCA TGGTGATTGC CAATAACCTT GGCTTAATGA CAAAGCTTCA	480
AACGATCGAT GGGACTAACT GGTGGAGTTC GCCAACCGCT AATTTACAGT ATGACTTAAC	540
CTTATCTTTT CTTGTCATTT TGTGACACA TATAGAAAGC GTTCGTCGTC GTGGATTTAA	600
AAAAAGTATA AAATCTTTTA TGAGTCCTGT TTTTGTCATA CCGATGAATA TCTTGAAGA	660
ATTTACAAAC TTCTTATCTT TGGCTTTGCG GATTTTTGGG AATATCTTTG CAGGAGAGGT	720
CATGACGAGT TTGTTACTTC TTCTTTCCCA CCAAGCTATT TATTGGTATC CAGTAGCCTT	780
TGGAGCTAAT TTGGCTTGGA CTGCATTTTC TGTCTTTATT TCCTGCATCC AAGCTTATGT	840
TTTTACTCTT TTGACATCTG TGTATTTAGG GAATAAGATT AATATTGAAG AGGAATAGAA	900

1038

AGGAGTAACT GATGCACGTA ACAGTAGGTG AATTAATTGG TAATTTTATT TTAATCACTG	960
GCTCTTTTAT TCTTTTGCTA GTCTTGATTA AAAAATTTGC ATGGTCTAAT ATTACAGGCA	1020
TTTTCGAAGA AAGAGCTGAA AAAATTGCTT CAGATATTGA CAGAGCTGAA GAAGCCCGTC	1080
AAAAAGCAGA AGTATTGGCT CAAAACGCG AAGATGAATT GGCTGGTAGC CGTAAAGAAG	1140
CTAAGACAAT CATTGAAAAT GCAAAGGAAA CAGCTGAGCA AAGTAAGGCT AATATCTTAG	1200
CAGATGCTAA ACTAGAAGCA GGACACTTAA AAGAAAAAGC CAATCAAGAA ATTGCTCAAA	1260
ATAAAGTAGA AGCTTTACAG AGTGTTAAGG GTGAGGTCGC AGATTTGACC ATCAGCTTAG	1320
CTGGTAAAAT CATCTCACAA AACCTTGACA GTCATGCCCA TAAAGCACTC ATTGATCAGT	1380
ATATCGATCA GCTAGGAGAA GCTTAATGGA CAAGAAAACA GTAAAGGTAA TTGAAAAATA	1440
CAGCATGCCT TTTGTCCAAT TGCTACTTGA AAAAGGAGAA GAAGACCGTA TCTTTTCAGA	1500
CCTGACTCAA ATCAAGCAAG TTGTTGAAAA AACAGGTCTG CCTTCTTTTT TAAAACAAGT	1560
GGCAGTAGAC GAGTCGGATA AGGAAAAAAC AATTGCTTTT TTCCAAGATT CTGTGTCGCC	1620
TTTATTACAA AACTTTATCC AGGTTCTGGC CTACAATCAC AGAGCAAATC TTTTTTATGA	1680
TGTGCTTGTA GATTGCTTGA ACCGACTTGA AAAAGAAACA AATCGATTGG AAGTGACGAT	1740
TACGTCTGCT CATCCTCTAA CTGATGAACA GAAGACTCGT TTGCTCCCTT TGATTGAGAA	1800
AAAAATGTCT CTGAAAGTAA GGAGTGTAAA AGAACAAATC GATGAAAGTC TCATTGGTGG	1860
TTTTGTCAAT TTGCCAATC ACAAGACAAT TGATGTGAGT ATTAACAAC AACTTAAAGT	1920
TGTTAAAGAA AATTGAAAT AGAAAGTGGT GTTCTTTTGG CAATTAACGC ACAAGAAATC	1980
AGCGCTTTAA TTAAGCAACA AATTGAAAAT TTCAAACCCA ATTTTGATGT GACTGAAACA	2040
GGTGTTGTAA CCTATATCGG GGACGGTATC GCGCGTGCTC ACGGCCTTGA AAATGTCATG	2100
AGTGGAGAGT TGTGAATTT TGAACACGGC TCTTATGGTA TGGCTCAAAA CTTGGAGTCA	2160
ACAGACGTTG GTATTATCAT CCTAGGTGAC TTTACAGATA TCCGTGAAGG CGATACAATC	2220
CGCCGTACAG GGAAATCAT GGAAGTCCCT GTAGGTGAAA GTCTGATTGG TCGTGTGTG	2280
GATCCGCTTG GTCGTCCAGT TGACGGTCTT GGAGAAATCC AACTGATAA AACTCGTCCA	2340
GTAGAAGCAC CAGCTCCTGG TGTATGCAA CGTAAGTCTG TTTCAGAACC ATTGCAAAC	2400
GGTTTGAAAG CTATTGACGC CCTGTACCG ATTGGTCGTG GTCAACGTGA GTTGATTATC	2460
GGTGACCGTC AGACAGGGAA AACAACCATT GCGATTGATA CAATCTTGAA CCAAAAAGAT	2520
CAAGATATGA TCTGTATCTA CGTCGCGATT GGACAAAAAG AATCAACAGT TCGTACGCAA	2580
GTAGAAACAC TTCGTCAGTA CGGTGCCTTG GACTACACAA TCGTTGTGAC AGCCTCTGCT	2640
TCACAACCAT CTCCATTGCT CTTCTAGCT CCTTATGCTG GGGTTGCTAT GGCAGAAGAA	2700

1039

TTTATGTATC AAGGTAAGCA TGTTTTGATT GTATACGATG ATCTATCAAA ACAAGCGGTA	2760
GCTTATCGTG AACTGTCGCT CTTGCTTCGT CGTCCTCCAG GTCGTGAAGC CTTCCCAGGG	2820
GATGTTTTCT ATCTCCACAG CCGTTTGCTT GAGCGCTCAG CTAAAGTTTC TGATGAACCT	2880
GGTGGTGGAT CAATTACAGC CCTACCATTT ATCGAGACAC AAGCAGGAGA TATCTCAGCC	2940
TATATCGCAA CCAACGTGAT TTCTATCACT GATGGACAAA TCTTCCTTGG CGATGGCCTC	3000
TTCAATGCAG GTATTCGTCC AGCCATCGAT GCGGGTTCAT CTGTATCTCG TGTAGGTGGT	3060
TCTGCACAAA TCAAAGCCAT GAAGAAGGTT GCTGGTACAC TTCGTATCGA CCTTGCTTCA	3120
TACCGTGAGT TGAAGCCTT TACTAAGTTT GGTCTGACT TGGACGCAGC AACACAGGCT	3180
AAGTTGAACC GTGGACGTCG TACCGTTGAG GTCTTGAAAC AACCTGTTCA CAAACCATTA	3240
CCTGTTGAGA AACAAGTAAC CATTCTTTAT GCTTTGACAC ATGGTTTCTT GGATACTGTT	3300
CCAGTAGATG ATATTGTTCC TTTTCGAGGAA GAGTTCATG CCTTCTTTGA TGCTCAACAT	3360
CCAGAGATTT TGGAAACCAT TCGTGATACA AAAGACTTGC CAGAAGAAGC AGTCTTGAT	3420
GCTGCGATTA CAGAGTTTCT CAATCAATCT AGCTTCCAAT AAGAATAGAG GTGTCAGATG	3480
GCAGTATCTC TAAATGATAT TAAAACAAAA ATCGCCTCAA CAAAAATAC GAGTCAAATC	3540
ACTAATGCCA TGCAAATGGT ATCGGCTGCT AAGCTAGGTC GTTCTGAAGA AGCTGCTCGC	3600
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GGAGCTGGTG CTTCAACTAA TCCGATGTTG ATTAGCCGTT CTGTGAAGAA GACAGGCTAT	3720
ATCGTTATCA CTTCAGACCG CGGTTTGTTT GGAGGTTATA ATTCCTCTAT TTTGAAAGCT	3780
GTTATGGAGT TGAAAGAAGA ATACCACCCA GACGGTAAAG GTTTTGAAAT GATCTGTATC	3840
GGTGGGATGG GAGCTGATTT CTTTAAGGCT CGCGGTATTC AACCACCTTA TGAATTACGT	3900
GGCTTGTCAG ACCAACCTAG CTTTGATCAA GTTCGTAAGA TTATTTCAAA AACTGTTGAA	3960
ATGTACCAA ATGAACCTCT TGATGAGCTT TATGTTTGCT ACAACCACCA TGTCATACG	4020
CTAACCAGTC AAATGCGTGT GGAACAAATG CTTCCGATTG TTGACTTGGA TCCAAATGAA	4080
GCGGATGAAG AGTACAGCTT GACTTTTGAA TTGGAAACCA GCCGAGAAGA AATTCTGGAG	4140
CAGTTGTTGC CTCAGTTTGC AGAAAGTATG ATTTACGGTG CCATTATCGA TGCCAAGACA	4200
GCTGAGAATG CTGCGGGCAT GACAGCCATG CAAACAGCGA CAGATAATGC TAAGAAAGTC	4260
ATCAATGATT TGACAATTCA GTATAACCGT GCCAGACAGG CGGCGATTAC ACAAGAAATT	4320
ACAGAAATCG TAGCAGGTGC TAGTGCCTTA GAATAGGCTC TAGTCCAGCT CGTATGAAAA	4380
TGAACCTTAGG ACCTAGTTGA GCTAGGAACC GACAGTATCT TATATAGAAT AGGAGAAGGA	4440

1040

GATGAGTTCA CGTAAAATTG CTCAGGTTAT CGGTCCCCTT GTAGACGTTT TGTTCGACGC	4500
AGGGGAAAAA CTTCTGAGA TTAACAATGC ACTTGTCGTC TACAAAAATG ACGAAAGAAA	4560
AACAAAAATC GTCCTTGAAG TAGCCTTGA GTTAGGAGAT GGTATGGTTC GTACTATCGC	4620
CATGGAATCA ACAGATGGGT TGA CTCTGACCA GTAGGTAAAG AAACCTTGGG ACGTGTCTTC AACGTTTTGG GAGATACCAT	4680
CTCTGACCA GTAGGTAAAG AAACCTTGGG ACGTGTCTTC AACGTTTTGG GAGATACCAT	4740
TGACTTGGAA GCTCCTTTTA CAGAAGACGC AGAGCGTCAG CCAATTCATA AAAAAGCTCC	4800
AACTTTTGAT GAGTTGTCTA CCTCTTCTGA AATCCTTGAA ACAGGGATCA AGGTTATTGA	4860
CCTTCTTGCC CTTTACCTTA AAGGTGGTAA AGTTGGACTT TTCGGTGGTG CCGGAGTTGG	4920
TAAAACTGTC TTAATCCAAG AATTGATTCA CAACATTGCC CAAGAGCACG GTGGTATTTT	4980
AGTATTTGCT GGTGTTGGGG AACGTACTCG TGAGGGGAAT GACCTTTACT GGGAAATGAA	5040
AGAATCAGGC GTTATCGAGA AAACAGCCAT GGTCTTTGGT CAGATGAATG AGCCACCAGG	5100
AGCACGTATG CGTGTGCCCC TTA CTCTGATG GGTGTTGGT CAGATGAATG AGCCACCAGG	5160
AGGCAAGAC GTGCTTCTCT TTATCGATAA TATCTTCCGT TTCCTCAGG CTGGTTCAGA	5220
AGTATCTGCC CTTTGGGTC GTATGCCATC AGCCGTTGGT TACCAACCAA CACTTGCTAC	5280
GGAAATGGGT CAATTGCAAG AACGTATCAC ATCAACCAAG AAGGGTTCTG TAACCTCTAT	5340
CCAGGCTATC TATGTGCCAG CGGATGACTA TACTGACCCA GCGCCAGCAA CAGCCTTCGC	5400
TCACTTGGAT TCAACAACAA ACTTGGAACG TAAGTTGGTA CAATTGGGTA TCTACCCAGC	5460
CGTTGACCCA CTTGCTTCAA GCTCACGTGC CTTGGCACCT GAAATCGTTG GAGAAGAGCA	5520
CTATGCAGTT GCTGCTGAAG TAAAACGTGT CCTTCAACGT TACCATGAAT TGCAAGATAT	5580
CATTGCTATC CTTGGTATGG ATGAGCTTTC TGATGAAGAA AAGACCTGG TTGCTCGCGC	5640
CCGTCGTATC CAGTTCTTCT TGTACAAAA CTTCAACGTT GCGGAACAAT TTAAGGAAA TCCTTGATGG	5700
GCCAGGTTCT TATGTTCCAG TTGCTGAAAC TGTACGTGGC TTTAAGGAAA TCCTTGATGG	5760
TAAATACGAC CACTTGCCAG AAGATGCCTT CCGTGGTGTA GGTTCATATC AAGATGTGAT	5820
TGCAAAAGCT GAAAAAATGG GATTTTAAGA GGTGATCTAT GGCTCAGTTA ACTGTCCAGA	5880
TCGTGACACC AGATGGTCTC GTCTATGATC ACCATGCCAG CTATGTATCG GTTCGAACTC	5940
TGGATGGTGA GATGGGGATC TTGCCACGAC ATGAAAATAT GATTGCGGTT TTAGCAGTTG	6000
ATGAAGTAAA GGTAACACGT ATCGATGATA AAGATCACGT GAACTGGATT GCAGTAAACG	6060
GTGGCGTTAT TGAAATTGCC AATGATATGA TCACAATCGT CGTGACTCT GCAGAACGTG	6120
CTCGTGATAT CGATATCAGT CGTGCAGAAC GTGCCAACT TCGTGCAGAA CGTGCAATTG	6180
AAGAAGCACA AGACAAACAT TTGATTGACC AAGAACGTCG TGCTAAGATT GCTTTGCAAC	6240



1041

GTGCTATTAA CCGTATTAAT GTCGGAAATA GACTATAAGA AAAAATGAAC TTGAAAATAC	6300
CAAGTTCATT TTTTATGGTG TTTTAAGGAG CAAAACGGAT GCAGACTGCT TCGGGAACAT	6360
GGAAGTCGTT GGAGAGTTCT GCTAGACGAC CATTGTCACA ATTACGTTTA AAGACAGTTG	6420
CATTGTCAGA GTCTTGATGG ACAACAATGA GAAATTTTGT GTCGGGTGTC AAATCAAAAT	6480
CACGTGGAGT CTGACCATGC GTTGGAACGA TTTCTAATAA CTCTAAGCTA CCGTCCGCAA	6540
GGATGGTATA TACTGCGATA GAATCATGGC CACGGTTAGA AGCGTAGAGG TATTTACCGT	6600
CTTTAGAGAG ATGAATAGCA GCGGTTCCAT TAAAGCCTTC GTAAGCTTCC GGTAAAGTTG	6660
AAATGACCTG CATACTTCA AATTCGCCAA CGCCATCGTA GATTAAAACT TCGATAGTAC	6720
TATTGAGTTC ACAAATGAGA TAAGCGATTT TATAGTGGTT ATGGAAAATG ATATGGCGTG	6780
AGCCTGCTCC TGGCTTGCTG TGATAGGTAT AGAGCTTAGA TAATTTTCCT TCTTGATCGA	6840
GGTCATAGGT GATGACTTGG TCAGTTCCCA AGTCGCAGGT CACTAGATAG TGGTCAGGTG	6900
TTAAATCTGT ATAGTGAACA TGGGGGGAAG CTTGATTTTC ATGTGGACCT TGGCCACTGT	6960
GTTGATCCAT ATCACTAAGT AGAAGACTAC CATCTTCCTG GCGTTTATAA ACAAGGACTT	7020
GTCCCTTG TG ATAGTTAGCT GCGTAAACCA AATCAGCTT TTCATCGACA GCAACATAAC	7080
AGTGGGGAGC TCCTTCTTCA ACAACATGAT TTAACACAGT CCCGTCAGTT TGATAGGCTG	7140
CAATTCCTCC CTTATCGTCT TGGCTACCAA CAGTGATATA ATGTTGGTGC TGGTCAAAGC	7200
CAAGGTAGGT TGGACTTGGC TCAGCTGCAA AAAGTTCTAG ATTTGAAAGC TGACCAGTTT	7260
CTGTATCAAA GTCTGCCTTG TAAATCCCTT GAGAAGTACG ACGTGATATA GTTCCAAAAT	7320
AAACAGTTTC TTTCACTACT ATACCTCTGT GTAAAGATAA GACTATTATA TCACAAAAC	7380
AAGTAAATTA AAGATATCCA ATTAGATGTA AGCACTTTAA AAAAGAGTTA TTTTGTTTCA	7440
AAAATGGTAT AATGAGAGAA CAATAGAAAG GAAGTATTTA TGGAGCAAAA AGAGAAACAT	7500
TTTAGCCTAT CTTGGTTTTT CAAGTGGTTT TTAGATAACA AGGCAATTAC GGTATTTTCA	7560
GTAACCTTAT TATTGGGACT GAATCTTTTT ATTTAAGTA AGATTAGTTT TCTATTTTCA	7620
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TATTTGTTGA ATCCTATTGT TGATTGGATG GAGAAGCATA AGGTAAATCG TGTATAGCT	7740
ATCACTATTG TCTTTGTTAT CATCGCTCTC TTTATCATTT GGGGCTTGGC AGTCGCCATT	7800
CCAAATCTGC AACGTCAGGT TTTGACCTTT GCAAGAAACG TTCCTGTTTA CTTAGAAGAT	7860
ATAGATAGGA TTGTTAATGG ATTGGTAGCC CAGCACCTGC CAGATGATTT CAGACCTCAA	7920
TTAGAGCAAG TTTTGACCAA TTTTCTAGC CAGGCTACAG TTTTGGCAAG TAAGGTTTCA	7980

1042

TCTCAGGCAG TCAACTGGGT GAGTGCCTTT ATTAGCGGGG CTTCTCAAGT GATTGTTGCC	8040
TTGATTATCG TTCCTTTCAT GCTCTTTTAT CTCTTGCGTG ATGGGAAAGG CTTGCGTAAC	8100
TATTTGACCC AATTCATTCC AAGAAAATTG AAGGAACCTG TTGGACAAGT TTTATCAGAT	8160
GTGAATCAAC AGTTGTCCAA CTATGTTCTGA GGGCAAGTGA CAGTGGCTAT TATTGTAGCA	8220
GTAATGTTTA TCATCTTCTT CAAGATTATT GGTCTACGCT ATGCGGTTAC GCTGGGGGTT	8280
ACTGCTGGTA TTTTAAATCT GGTCCCTTAT CTTGGTAGCT TTCTAGCCAT GCTTCCTGCT	8340
CTAGTATTGG GTTTGATTGC TGGTCCAGTC ATGCTTTTGA AAGTAGTGAT TGTCTTTATC	8400
GTAGAACAAA CTATTGAAGG CCGTTTGTG TCTCCATTGA TTTTGGAAG TCAATTAAAC	8460
ATCCACCCTA TTAATGTTCT CTTTGTGTTG TTAACCTCAG GATCTATGTT TGGTATCTGG	8520
GGAGTTTAC TTGGTATPCC GGTATTATGCC TCTGCTAAGG TTGTCATTTT AGCCATTTTC	8580
GAATGGTATA AGGTAGTCAG TGGTCTATAT GAATTAGAGG GTGAGGAAGT CAAGAGTGAA	8640
CAATAGTCAA CAGATGTTAC AGGCTTTGGA GGAGCAAGAT TTAATAAGG CTGAGCATT	8700
TTTCGCCAAA GCTTTAGAAA ATGATTCAAG TGATCTTCTG TATGAATTGG CAACTTATCT	8760
TGAAGGGATT GGTTCCTATC CTCAGGCCAA GGAAATTTAC CTGAAAATTG TAGAGGATTT	8820
TCCAGAGGTT CATCTTAATC TAGCTGCAAT TGCTAGCGAG GATGGTCAAA TAGAAGAAGC	8880
CTTTACCTAT CTTGAGGAAA TCCAAGCTGA CAGTGAAGT TATGTCTCGT CTTTGGCTCT	8940
GAAGGCAGAC CTTTACCAGC TGGAAGGTTT GACAGATGTG GCACGTGAGA AATTATTGGA	9000
GGCCTTGACC TACTCAGAGG ATTCTCTCTT GATATTGGGT TTGGCAGAGT TGGATAGTGA	9060
GTTGGAAAAT TACCAAGCGG CTATTCAAGC CTATGCCAG TTAGATAATC GCTCGATTTA	9120
TGAGCAAACG GGCATTTCCA CCTATCAACG AATTGGCTTT GCCTATGCTC AGTTAGGGAA	9180
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GGCTTTACAT AAGGAACATC AAGTTCAAGA AGCCCTGCGT ATCGCTAAGC AAGGATTAGA	9420
GAAAAATCCC TTTGAAACTC GCCTCTTGCT AGCTGCTTCA CAATTTTCTT ATGAATTGCA	9480
TGATGCTAGT GGTGCAGAAA ATTATCTCCT TACTGCAAAA GAAGACGCTG AGGATACAGA	9540
AGAAATCTTG CTTGCTTTAG CCACTATTTA TCTGGAGCAG GAGCGTTATG AGGATATTCT	9600
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TCAAGAAATG GACGATTTGG ATACTGCTTA TGAGTATTAT CAAGAGTTGA CAGGAGATTT	9720
GAAGGACAAT CCAGAATTTT TGGAACACTA TATCTATCTC TTGCGTGAAT TGGGACATTT	9780

1043

TGAAGAAGCA AAAGTCCATG CTCACACTTA CTTAAAACTG GTTCCAGATG ATGTGCAAAT	9840
GCAAGAAGCTG TTTGAGAGAT TGTAAGAATG TTAAACCCAA ATCATTGATA CCTCTCTCAA	9900
CTAGATGTAA CTTACAAAAC CCCTGACCTC ATGAGCCACT TTCTTCCTCC TCATGAGGTC	9960
AGTTTTACTT TCTGCTGTT CAGTATCGTT TTCTCTCGCT AGATTTCCTC AAAAGGGCAG	10020
ACTCCTCCCT TGGTGCGTCA CACGATTTTT TCATCTCGAC TGTTCCTTAA TGCATCATT	10080
ACGACGCTTT TCTTCTAGGT GGTTCATAAG GAACAGGAAG ATTCAGGTTG ACTTTTCTAA	10140
TCCTAGAATA AAGTGCTGAA AACAATTCCG AATAGGCATA GAGACTAGAC AATTGAGGA	10200
GCTGCTTGGC TCCTGTTCGA ACACATTTTC CCACCACGTG AAGAAAAAGA TGGCGGAAGC	10260
GTTTGATTGT TAAAGTTTGG AAGTCACCTC CAGCTAGATG TTTGAGAAAA AGATAGAGAT	10320
TGTAGGCGAT ACAGCTCATC ATCATACGAA TTCGTTTTTG ATTAAGGTTG AACTATCCGT	10380
TTTATCGCCA AAAAATCGG	10399

## (2) INFORMATION FOR SEQ ID NO: 161:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 9409 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 161:

GATAAGATTA AGTTAGAAAA GAAAGAACTA GGACATATCT ACCAGATTCA GGTTTTTAAT	60
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TCAACCAATA TCAAGTATGC TGCTGTCTTG ATTAATACCA GTCAGTTGGA ACAGGCTAGT	180
CAAAAGCATG AGCAATTGAT TGTGGTCGTG ATGGCTAGTT TCTGGATTTT GTCTTTACTT	240
GCCAGTCTCT ATCTAGCTAG GGTCACTGTT AGGCCCTGC TTGAGAGTAT GCAGAAGCAA	300
CAGTCTTTTG TGGAAATGC CAGTCATGAG TTACGAACTC CACTCGCAGT TTTGCAAAAT	360
CGCTTAGAGA CCCTTTTTCG TAAGCCAGAA GCTACCATTA TGGATGTGAG CGAAAGCATT	420
GCATCGAGTT TGGAAGAAGT CCGAAATATG CGTTTTTTAA CGACAAGCTT GCTGAACTTA	480
GCTCGGAGAG ATGATGGGAT TAAGCCGGAG CTTGCAGAAG TTCCAAGTAG CTTTTTTAAT	540
ACAACTTTCA CAACTACGA GATGATTGCT TCGGAAAATA ATCGTGTCTT CCGTTTTGAA	600
AATCGTATCC ATCGAACAAT TGTCACAGAT CAGCTTCTTC TGAACAACAT GATGACCATT	660
CTTTTCGATA ATGCCGTCAA GTATACTGAG GAGGATGGTG AAATTGATTT TCTTATCTCG	720

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GCGACCGATC	GCAATCTTTA	TTTACTTGTT	TCTGATAATG	GAATCGGTAT	TTCGACAGAA	780
GATAAAAAGA	AAATTTTGA	CCGTTTTTAT	CGAGTAGACA	AGGCTAGAAC	CCGGCAAAAA	840
GGTGGTTTTG	GTTTAGGATT	ATCCCTAGCC	AAGCAAATTG	TAGATGCTCT	AAAAGGAACT	900
GTTACTGTCA	AAGATAATAA	ACCCAAGGGA	ACAATCTTTG	AAGTGAAGAT	TGCCATTTCAG	960
ACACCATCTA	AAAAGAAAAA	ATAAAAATAT	CGCTCCAATT	GGGGCGATAT	TTTGGATTTA	1020
TCTTCTACGT	TTTCGTTTGA	TAATAGACCG	TTGAACTTT	AAAACAAGTA	AGCTGAATCC	1080
GATTGCTGCG	GCAAAGGCAA	GAGCAGTTGA	TAATTTTAAT	GCTAAAAAGA	TAAAACTAAA	1140
GATAGCAATA	CAGATACAAA	AAACAGCGAT	ATTAATAAAA	AATAGGATTT	CCTTGAGATT	1200
GGCATCAGAT	TGCGCTTCAG	GTGTATAAGC	TTGGTAATGA	GGAAGCTGCT	GGTTTAATTC	1260
TTCTTGATAG	TCTACCTCAT	AGGATTGTAA	TTTTCTTACG	GGCATGATTC	TCTCCTTAAC	1320
AGTACATACC	TATTTTATCA	TTTTTTCGGC	AGAGAATTAT	TACAGAAAGG	TTACAAAAAG	1380
AATAAAGTCC	CTTTTCATTT	TCAAAGCATG	GCTGATTTTG	GAGAAATGTG	GTATAATTTT	1440
TCTTATGGAA	AAGATTGTCA	TTACAGCAAC	TGCTGAAAGT	ATTGAACAAG	TTGAACAAC	1500
ACTCGAAGCT	GGCGTAGACC	GTATCTATGT	CGGTGAGAAA	GATTTTGGTC	TTCGTCTGCC	1560
AACGACCTTT	AGTTATGACC	AATTACGTGA	AATCGCTAAG	TTGGTTCATG	ATGCTGGTAA	1620
GGAATTGATC	GTTGCGGTCA	ATGCTCTCAT	GCACCAAGAT	ATGATGGACC	GTATCAAGCC	1680
TTTCTTAAAC	TTCTTGGAAG	AAATCAAGAC	AGACTATATT	ACGATTGGGG	ATGCAGGCGT	1740
CTTTTACGTA	GTTAACCGCG	ATGGTTATTC	ATTTAAGACC	ATCTACGATG	CTTCAACCAT	1800
GGTAACTAGC	AGTCGTCAGA	TTAACTTCTG	GGGACAAAAG	GCTGGCGCAT	CTGAGGCTGT	1860
TTTGGCGCGT	GAAATTCCAT	CAGCTGAACT	TTTCAAAATG	CCAGAGATTT	TGGAAATTC	1920
TGCTGAAGTT	TTGGTTTACG	GTGCTAGCGT	CATCCATCAT	TCTAAACGTC	CACTCTTGCA	1980
AAACTACTAT	AACTTTACAC	ATATCGATGA	TGAAAAGACG	CATAAACGTG	ACCTCTTCTT	2040
GGCTGAGCCA	AGTGATCCAG	AGAGCCACTA	TTCCATTTTT	GAAGATAATC	ATGGGACCCA	2100
TATCTTTGCC	AACAATGACC	TTGATTTGAT	GATCAAAATTA	ACAGAAATTGG	TGGAGCATGG	2160
CTTTACTCGC	TGGAAACTAG	AAGGGCTCTA	CACTCCTGGT	CAGAACTTTG	TTGAGATTGC	2220
AAAACTCTTT	ATCCAAGCGC	GTAGCTTGAT	TCAAGAGGGC	AACTTTAGTC	ATGCTCAAGC	2280
CTTCTTGCTG	GATGAAGAAG	TTCGTAAACT	TCACCCTAAA	AACCGTTTCC	TTGATACAGG	2340
ATTTTATGAC	TACGATCCTG	ACATGGTTAG	ATAAAATACA	TGATTCGTTG	AGAGAAGGAA	2400
GATGCAAAAC	TTTCTTCTCT	CAATTTTTCG	TATTTCTTCA	CTATTTTACA	AAAATCAGCA	2460
GGCTAGAATG	CTCTATTCTA	TGGGATTTTT	AAGAAAAGTA	GTGTTCTTGA	GTTTGAAAAAT	2520

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TATCCTATGT TTGCAGGTGC CAAATGGCCC TTTTITGGT ATAATTTTTT ATAATGAAAA	2580
CGATTGGTAA TCGCTATGTT GTGGTGGATT TAGAGGCAAC TAGCACAGGT AGTAAGGCTA	2640
AAATTATCCA AGTGGGAATT GTCGTGATTG AGGACGGAGA AATCGTCGAT CACTATACGA	2700
CGGATGTCAA TCCACATGAA CCCTTGGATG CTCATATCAA AGAACTGACA GGATTGACAG	2760
ACCAACGTCT GCGCAAGCA CCTGATTTTT CGCAAGTTGC CAGAAAAATA TTTGACTTGG	2820
TGGAGGATGG GATTTTTGTA GCCCATAATG TTCAGTTTGA TGCTAATCTC TTGGCGGAAA	2880
ATTTATTTTT TGAAGGCTAT GAGCTAAGAA ACCCTCGTGT TGATACGGTC GAATTGGCCC	2940
AGGTCTTTTT CCCTGAACTG GAAAAATATA GCTTGCCGAT TTTGTGTCTA GAATTAGGAA	3000
TTCTCTTAA ACACGCACAC ACAGCCCTTT CAGATGCCCA AGCTACAGCA GAATTACTTC	3060
TTTTTTTACG GAAAAAGATG ACCCAGCTTC CTAAAGGTCT CTGGAACGC TTGCTGGAAA	3120
TGGCTGACGC TCTCCTATAT GAGTCTACC TGGTTATTGA GGAACTTAT CGCAACCAAT	3180
CTATCCTGAG TTCTCCAGAC TTGGTCCAAG TTCAAGGTCT ATATTTTAAG AAAACGGAAG	3240
CTTCTCTGGA GCCACGAAAA CTATCTCAAG ACTTTTCTAA AAATATTTCT CTGTTGAACC	3300
TTGAAGTGAG GGAGGAACAA GAAAGTTTGT CTAAAGAGGT TGGCTTGCTA TTGAAAGATG	3360
AACCTGTCTC TCTGATTCAA GCGCCGACAG GGATTGGGAA AACCTATGGC TATCTCTTAC	3420
CCGCTTTATC TCAATCCAAA GAGCGACAAA TTGTTCTTAG TGTCCGACA AAGATTCTTC	3480
AAAATCAAAT CATGGAAGAA GAAGGTAAAC GCCTCAAGGA AGTGTTCAT ACAGATATTC	3540
ATAGCTTAAA GGGACCACAA AATTATCTGA AGTTGGATGC CTTTTATCAT TCCTTGACAG	3600
AAAATGATGA AAATCGCTTA TTTAGACGCT TTAATATGCA AGTCTGGTC TGGCTTACTG	3660
AGACAGAGAC AGGAGATTTG GATGAAATCG GGCAACTCTA CCGTTACCAA CATTTTCTAG	3720
CAGACCTTCG TCATGATGGG AATTTATCAT CCCAGAGCTT ATTTGTGACG GAAGATTTTT	3780
GGAAACGTAG TCAAGAAAGG GCAGAGACTT GCAAGCTTTT AGTGACTAAT CATGCCTATC	3840
TCGTAACCAG ACTTGAAGAT AATCCTGAAT TTGTCAGTGA CCGTTTACTG ATTATTGATG	3900
AAGTCCAAAA GATTTTGTGA GCTCTAGAAA ATCTGCTTCA AGAGACCTAC GATATACAAT	3960
CTATTATCGA TTTAATTGAT AAGGCTTTAG TAGGAGAAGA AACAGGGTT CAACAACGGA	4020
TACTAGAAAG TATTCGCTTT GAGTGTCTCT ACTTGATAGA ACAATTCAG TCTGGCAAAT	4080
CTAGGAAAAA TATCTTAGAT TCTCTGGACA ATCTCCATCA GTATTTTCA GAATTGGAAG	4140
TAGAAGACTT TGATGAGCTG GTTCGCTATT TTACAGCTGA AGGTGATTAC TGGCTTGAAG	4200
TAACTGAAAC GAGTCAAAAG AAAATTCAGA TTTCTTCTAC AAAATCAGGC CGTACTCTTC	4260

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TGTCCTCTTT	ACTTCCTGAG	AGTTGCCAAG	TCTTGGGAGT	ATCGGCTACT	CTTGAGATTA	4320
GTCAGAGGGT	TTCTTTGGCA	GACCTTTTAG	GCTATCCTGA	AGCTAAATTT	GTCAAGATTG	4380
AATCTCGGGG	AAAACAGGAA	CAAGAAGTGG	TCATGGTCAA	AGATTTCCCT	CTGGTAACAG	4440
AAACCTCCTT	AGAAGTCTAT	GCCAGAGAGG	TAGCTGCTTT	ACTAGTGGAA	ATTCAAGCTT	4500
TCCAGCAACC	GATTTTGGTT	CTCTTTACCG	CTAAAGACAT	GCTTCTAGCA	GTATCGGATT	4560
TACTTACAGT	TAGCCACTTG	GCCCAGTATA	AAAATGGGGA	TGTTTCATCAG	CTAAAGAAAC	4620
GCTTTGAAAA	AGGTGAACAA	CAAATCTTGC	TTGGTGCAGC	AAGTTTCTGG	GAGGGAGTTG	4680
ATTTTTCAAG	CCATCCTTCT	GTGATTCAAG	TTGTACCGAG	GCTTCCTTTC	CAAAATCCTC	4740
AAGAACCCTT	GACGAAAAAG	ATTAATCAAG	AACTGAATCA	AGAAGGGAAA	AATGCCTTTT	4800
ATGATTATCA	ATTGCCAATG	GCCATTATTC	GTTTAAACA	GGCTTTGGGA	AGAAGTATGA	4860
GACGTGAATA	CCAACGTTCC	TTAACTCTTA	TTTTGGATAG	GAGAATCGTC	GGAAAACGAT	4920
ACGGCAAACA	AATAGTAGCA	TCTCTAGCAG	AAGAAGCGAC	TGTTAAAACC	ATCTCTCGAT	4980
CCGAAGTTGA	CGAGGCTATT	GATAGATTTT	TTAATGAGCT	TTGATAAATA	GTATTGTATG	5040
AAAGTATAAG	GTTAGTATAT	ATGAAACGTT	CTCTCGACTC	AAGAGTCGAT	TACAGTTTGC	5100
TCTTGCCAGT	ATTTTTTCTA	CTGGTCATCG	GTGTGGTGGC	TATCTATATA	GCCGTTAGTC	5160
ATGATTATCC	CAATAATATT	CTGCCCATTT	TAGGGCAGCA	GGTCGCCTGG	ATTGCCTTGG	5220
GGCTTGTGAT	TGGTTTTGTG	GTCTGCTCT	TTAATACAGA	ATTTCTTTGG	AAGGTGACCC	5280
CCTTTCTATA	TATTTTAGGC	TTGGGACTTA	TGATCTTGCC	GATTGTATTT	TATAATCCAA	5340
GCTTAGTTGC	ATCAACGGGT	GCCAAAACT	GGTATCAAT	AAATGGAATT	ACCCTATTCC	5400
AACCGTCAGA	ATTTATGAAG	ATATCCTATA	TCCTCATGTT	GGCTCGTGTC	ATTGTCCAAT	5460
TTACAAAGAA	ACATAAGGAA	TGGAGACGCA	CGGTTCCGCT	GGACTTTTGT	TTAATTTTCT	5520
GGATGATTCT	CTTTACCATT	CCAGTCCTAG	TTCTTTTAGC	ACTTCAAAGT	GACTTGGGGA	5580
CGGCTTTGGT	TTTTGTAGCC	ATTTTCTCAG	GAATCGTTTT	ATTATCAGGG	GTTTCTTGGA	5640
AAATTATTAT	CCCAGTATTT	GTGACTGCTG	TAACAGGAGT	TGCTGGTTTC	TTAGCTATCT	5700
TTATTAGCAA	GGACGGACGA	GCTTTTCTTC	ACCAGATTGG	AATGCCGACC	TACCAAATTA	5760
ATCGGATTTT	GGCTTGGCTC	AATCCCTTTG	AGTTTGCCCA	AACAACGACT	TACCAGCAGG	5820
CTCAAGGGCA	GATTGCCATT	GGGAGTGGTG	GCTTATTTGG	TCAGGGATTT	AATGCTTCGA	5880
ATCTGCTTAT	CCCAGTTCGA	GAGTCAGATA	TGATTTTAC	GGTTATTGCA	GAAGATTTTG	5940
GCTTTATTGG	CTCTGTCCTG	GTTATTGCCC	TCTATCTCAT	GTTGATTTAC	CGTATGTTGA	6000
AGATTACTCT	TAAATCAAAT	AACCAGTTCT	ACACTTATAT	TTCCACAGGT	TTGATTATGA	6060

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TGTTGCTCTT CCACATCTTT GAGAATATCG GTGCTGTGAC TGGACTACTT CCTTTGACGG	6120
GGATTCCCTT GCCTTTCATT TCGCAAGGGG GATCAGCTAT TATCAGTAAT CTGATTGGTG	6180
TTGGTTTGCT TTTATCGATG AGTTACCAGA CTAATCTAGC TGAAGAAAAG AGCGGAAAAG	6240
TCCCATTCAA ACGGAAAAG GTTGTATTAA AACAAATTAA ATAAGGAGAA AATCATGGTA	6300
AAAGTAGCAG TTATATTAGC TCAGGGCTTT GAAGAAATTG AAGCCTTGAC AGTTGTAGAT	6360
GTCTTGCGTC GAGCCAATAT CACATGTGAT ATGGTTGGTT TTGAAGAGCA AGTAACGGGT	6420
TCGCATGCAA TCCAAGTAAG AGCAGATCAT GTCTTTGATG GAGATTTATC AGACTATGAT	6480
ATGATTGTTT TCCTGGAGG TATGCCTGGT TCTGCACATT TACGTGATAA TCAGACCTTG	6540
ATTCAAGAAT TGCAAAGCTT CGAGCAAGAA GGAAGAAAC TAGCAGCCAT TTGTGCGGCA	6600
CCAATTGCCC TCAATCAAGC AGAGATATTG AAAAAATAAGC GATACACTTG TTATGACGGC	6660
GTCAAGAGC AAATCCTTGA TGGTCACTAC GTCAAGGAAA CAGTAGTGGT AGATGGTCAG	6720
TTGACAACCA GTCGGGGTCC TTCAACAGCC CTGCTCTTG CCTACGAGTT GGTGGAGCAA	6780
CTAGGAGGGG ACGCAGAGAG TTTACGAACA GGAATGCTCT ATCGAGATGT CTTTGGTAAA	6840
AATCAGTAAA ACGGGAGTTA TTCTCTCGTT TTTTATGTGG AAAACTCAGG GAAATCATCG	6900
CTTTTTTCAT AAAAAATGC TATAATGAAG GGTATGAAAT ATCACGATTA CATCTGGGAT	6960
TTAGGTGGAA CTTTACTGGA TAATTATGAA ACTTCAACAG CTGCATTGTG TGAAACATTG	7020
GCCTGTATG GTATCACACA AGACCATGAC AGTGTCTATC AAGCTTTAAA GGTTCCTACT	7080
CCTTTTGCGA TTGAGACATT CGCTCCCAAT TTAGAGAATT TTTTAGAAAA GTACAAGGAA	7140
AATGAAGCCA GAGAGCTTGA ACACCCGATT TTATTTGAAG GAGTTTCTGA CCTATTGGAA	7200
GACATTTCAA ATCAAGGTGG CCGTCATTTT TTGGTCTCTC ATCGAAATGA TCAGGTTTTG	7260
GAAATTTTAG AAAAAACCTC TATAGCAGCT TATTTTACAG AAGTGGTGAC TTCTAGCTCA	7320
GGCTTTAAGA GAAAGCCAAA TCCCGAATCC ATGCTTTATT TAAGAGAAAA GTATCAGATT	7380
AGCTCTGGTC TTGTCATTGG TGATCGGCCG ATTGATATCG AAGCAGGTCA AGCTGCAGGA	7440
CTTGATACCC ACTTGTTTAC CAGTATCGTG AATTTAAGAC AAGTATTAGA CATATAAGAA	7500
AAAGGAATAA GATGACAGAA GAAATCAAAA ATCTGCAGGC ACAGGATTAT GATGCCAGTC	7560
AAATTCAAGT TTTAGAGGGC TTAGAGGCTG TTCGTATGCG TCCAGGGATG TACATTGGAT	7620
CAACCTCAAA AGAAGTCTT CACCATCTAG TCTGGGAAAT TGTTGATAAC TCAATTGACG	7680
AGGCCTTGGC AGGATTTGCC AGCCATATTC AAGTTTTTAT TGAGCCAGAT GATTTCGATTA	7740
CTGTTGTGGA TGATGGGCGT GGTATCCCAG TCGATATTCA GGAAAAACA GGCCGTCCTG	7800

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CTGTTGAGAC CGTCTTTACA GTCCTTCACG CTGGAGGAAA GTTCGGCGGT GGTGGATACA	7860
AGGTTTCAGG TGGTCTTCAC GGGGTGGGGT CGTCAGTAGT TAATGCCCTT TCCACTCAAT	7920
TAGACGTTCA TGTTCACAAA AATGGTAAGA TTCATTACCA AGAATACCGT CGTGGTCATG	7980
TTGTCGCAGA TCTTGAAATA GTTGGAGATA CGGATAAAAC AGGAACAACCT GTTCACTTCA	8040
CACCGGACCC AAAAATCTTC ACTGAAACAA CAATCTTTGA TTTTGATAAA TTAAATAAAC	8100
GGATTCAAGA GTTGGCCTTT CTAAATCGCG GTCTTCAAAT TTCAATTACA GATAAGCGCC	8160
AAGGTTTGA ACAAACCAAG CATTATCATT ATGAAGGTGG GATTGCTAGT TACGTTGAAT	8220
ATATCAACGA GAACAAGGAT GTAATCTTTG ATACACCAAT CTATACAGAC GGTGAGATGG	8280
ATGATATCAC AGTTGAGGTA GCCATGCAGT ACACAACCTGG TTACCATGAA AATGTCATGA	8340
GTTTCGCCAA TAATATTCAT ACCCATGAAG GTGGAACACA TGAACAAGGT TTCCGTACAG	8400
CCTTGACACG TGTATCAAC GATTATGCTC GTAAAAATAA GTTACTGAAA GACAATGAAG	8460
ATAATTTAAC AGGGGAAGAT GTTCGCGAAG GCTTAACTGC AGTTATCTCA GTTAAACACC	8520
CAAATCCACA GTTTGAAGGA CAAACCAAGA CCAAATGGG AAATAGCGAA GTGGTCAAGA	8580
TTACCAATCG CCTCTTCAGT GAAGCTTTCT CCGATTTCTT CATGGAAAAT CCACAGATTG	8640
CCAAACGTAT CGTAGAAAAA GGAATTTTGG CTGCCAAGGC TCGTGTGGCT GCCAAGCGTG	8700
CGCGTGAAGT CACACGTAAG AAATCTGGTT TGGAAATTTT CAACCTTCCA GGGAAACTAG	8760
CAGACTGTTT TTCTAATAAC CCTGCTGAAA CAGAACTCTT CATCGTCGAA GGAGACTCAG	8820
CTGGTGGATC AGCCAAATCT GGTCTGAACC GTGAGTTTCA GGCTATCCTT CCAATTCGCG	8880
GTAAGATTTT GAACGTTGAA AAAGCAAGTA TGGATAAGAT TCTAGCCAAC GAAGAAATTC	8940
GTAGTCTTTT CACAGCCATG GGAACAGGAT TTGGCGCAGA ATTTGATGTT TCGAAAGCCC	9000
GTTACCAAAA ACTCGTTTTG ATGACCGATG CCGATGTCGA TGGAGCCAC ATTCGTACCC	9060
TTCTTTTAAC CTTGATTTAT CGTTATATGA AACCAATCCT AGAAGCTGGT TATGTTTATA	9120
TTGCCCAACC ACCAATCTAT GGTGTCAAGG TTGGAAGCGA GATTAAAGAA TATATCCAGC	9180
CGGGTGCAGA TCAAGAAATC AAACCTCAAG AAGCTTTAGC CCGTTATAGT GAAGGTCGTA	9240
CCAAACCGAC TATTCAGCGT TATAAGGGGC TAGGTGAAAT GGACGATCAT CAGCTGTGGG	9300
AAACAACCAT GGATCCCGAA CATCGCTTGA TGGCTAGAGT TTCTGTAGAT GATGTGCAGA	9360
AGCAGATAAA ATCTTTGATA TGTTGATGGG GATCGAGTTG TCCTCGTCG	9409

## (2) INFORMATION FOR SEQ ID NO: 162:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 6415 base pairs
  - (B) TYPE: nucleic acid



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(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 162:

CCTGGGAAAG TCTTGAAAAT TATGATAGAA TGGTGAAGG AAAAATTCAG GAGAGTAGTA	60
GTGACTCAAA ATGTTGAAAG TCTTCTCGTA TCCATTGTAA TCAGTGCATA CAATGAAGAA	120
AAATATCTGC CTGGTCTAAT TGAAGACTTA AAAAATCAAA CCTATCCTAA AGAGGATATT	180
GAAATTCTAT TTATAAATGC TATGTCCACA GATGGGACCA CAGCTATCAT TCAGCAATTT	240
ATAAAGGAAG ATACAGAGTT TAACTCAATT AGATTGTATA ACAATCCTAA GAAAAATCAA	300
GCTAGTGGTT TTAACCTGGG AGTTAAACAT TCTGTAGGGG ACCTTATTTT AAAAATTGAT	360
GCTCATTCAA AAGTTACTGA GACTTTTGTA ATGAACAATG TGGCTATTAT TCAACAAGGT	420
GAATTTGTCT GTGGGGGGCC TAGACCGACG ATTGTGGAAG GAAAAGGAAA ATGGGCAGAG	480
ACCTTGCATC TTGTTGAGGA AAATATGTTT GGCAGTAGCA TTGCCAATTA TCGAAATAGT	540
TCTGAGGATA GATATGTTTC TTCTATTTT CATGGAATGT ATAAACGAGA GGTTTTCCAG	600
AAGTTTGGTT TAGTAAATGA GCAACTTGGC CGAACTGAAG ATAATGATAT TCATTATAGA	660
ATTCGAGAAT ATGGTTATAA AATCCGCTAT AGCCCAAGTA TTCTATCTTA TCAGTATATT	720
CGACCAACAT TCAAGAAAAT GCTGCATCAA AAGTATTCAA ATGGTTTGTG GATTGGCTTG	780
ACAAGTCATG TTCAGTTTAA GTGTTTATCA TTATTTCACT ATGTTCTTGT TTTATTTGTT	840
TTGAGTCTTG TGTTTAGTCT AGCATTGTTA CCGATCACAT TCGTATTCAT AACTTTACTA	900
TTAGGTGCCT ATTTTCTACT TTTGTCAPTA CTCACTTTGC TGACTTTATT AAAACATAAA	960
AATGGATTTT TAATTGTGAT GCCCTTTATT TTATTTTCCA TTCACTTTGC TTATGGCCTT	1020
GGGACGATTG TAGGTTTAAT TAGAGGATTT AAATGGAAGA AGGAGTACAA GAGAACAATA	1080
ATTTATTTGG ATAAAATAAG CCAAATAAAT CAAATATGC TATAATAACA ATATAGTAAA	1140
ACTCTTTTAA GGAGGAGTAG ATTTCTATGA ATAAAAAACT AACAGATTAT GTGATTGATC	1200
TGGTGGAAAT TTTAAATAAA CAACAAAAGC AGGTTTCTG GGAATATTT GATATTTTCA	1260
GTATGGTGGT TTCCATCATT GTATCTTATA TTTTATTTTA TGGGCTGATT AATCCAGCAC	1320
CTGTTGACTA CATTATCTAT ACGAGTTTGG CCTTCCTGTT CTATCAATTG ATGATTGGTT	1380
TTTGGGGGTT GAACGCGAGC ATTAGTCGTT ACAGCAAGAT TACGGATTC ATGAAAATCT	1440
TTTTTGGTGT GACTGCTAGC AGTGTCTTGT CATATAGTAT CTGTTATGCC TTCTTGCCAC	1500
TCTTCTCCAT CCGTTTCATC ATTCTCTTTA TCTTGTGAG TACCTTCTTG ATTTTATTGC	1560

1050

CACGGATTAC TTGGCAGTTA ATCTACTCCA GACGCAAAAA AGGTAGTGGT GATGGAGAAC	1620
ACCGTCGGAC CTTCTTGATT GGTGCCGGTG ATGGTGGGGC TCTTTTATG GATAGTTACC	1680
AACATCCAAC CAGTGAATTA GAACTGGTCG GTATTTTGA TAAGGATTCT AAGAAAAAGG	1740
GTCAAAAAC TGGTGGTATT CCTGTTTGG GCTCTTATGA CAATCTGCCT GAATTAGCCA	1800
AACGCCATCA AATCGAGCGT GTCATCGTTG CGATTCCGTC GCTGGATCCG TCAGAATATG	1860
AGCGTATCTT GCAGATGTGT AATAAGCTGG GTGTCAAATG TTACAAGATG CCTAAGGTTG	1920
AAACTGTTGT TCAGGCCTT CACCAAGCAG GTACTGGCTT CCAAAAAATT GATATTACGG	1980
ACCTTTTGGG TCGTCAGGAA ATCCGTCTTG ACGAATCGCG TCTGGGTGCA GAACTGACAG	2040
GTAAGACCAT CTTAGTCACA GGAGCTGGAG GTTCAATCGG TTCTGAAATC TGTCGTCAAG	2100
TTAGTCGCTT CAATCCTGAA CGCATTGTCT TGCTCGGTCA TGGGGAAAAC TCAATCTACC	2160
TTGTTTATCA TGAATTGATT CGTAAGTTCC AAGGGATTGA TTATGTACCT GTGATTGCGG	2220
ACATTCAAGA CTATGATCGT TTGTTGCAAG TCTTTGAGCA GTACAAACCT GCTATTGTTT	2280
ATCATGCGGC AGCCCAAG CATGTTCTTA TGATGGAGCG CAATCCAAA GAAGCCTTCA	2340
AAAACAATAT CCGTGGAAC TACAATGTTG CTAAGGCTGT TGATGAAGCT AAAGTGTCTA	2400
AGATGGTTAT GATTTGACA GATAAGGCAG TCAATCCACC AAATGTTATG GGAGCAACCA	2460
AGCGCGTGGC GGAGTTGATT GTCAGTGGCT TTAACCAACG TAGCCAATCA ACCTACTGTG	2520
CAGTTGCTTT TGGGAATGTT CTTGGTAGCC GTGGTAGTGT CATCCAGTC TTTGAACGTC	2580
AGATTGCTGA AGTGCGCCT GTAACGGTGA CAGACTTCCG TATGACCCGT TACTTTATGA	2640
CCATTCCAGA AGCTAGCCGT CTGGTTATCC ATGCTGGTGC TTATGCCAAA GATGGGGAAG	2700
TCTTTATCCT TGATATGGGC AAACCAGTCA AGATTTATGA CTTGGCCAAG AAGATGGTGC	2760
TTCTAAGTGG CCACACTGAA AGTGAAATTC CAATCGTTGA AGTTGGAATC CGCCAGGTG	2820
AAAACTCTA CGAAGAACTC TTGGTATCAA CCGAACTCGT TGATAATCAA GTTATGGATA	2880
AGATTTTCGT TGGTAAGGTT AATGTCATGC CTTAGAATC CATCAATCAA AAGATTGGAG	2940
AGTTCGCAC TCTCAGTGA GATGAGTTGA AGCAAGCTAT TATCGCCTTT GCTAATCAA	3000
CAACCCACAT TGAATAAAAA AGAAAAACGC ATAGTATCAA GTTACACAAC CTTGGTAATA	3060
TGCGTTTTAT TATGTAGAGA CTTATACTCT TCGAAAATCT CTTCAAACCA CGTCAACGTC	3120
GCCTTGCCGT ATATGGTTAC TGAATTCGTC AGTTCTATCC ACAACCTCAA AACAGTGTTC	3180
TGAGTGAAT TCGTCAGTTC TATCCACAAC CTCAAACAG TGTTTTGAGC TGACTTCGTC	3240
AGTTCTATCC ACAACCTCAA AACAGTGTTC TGAGCTGAGT TCGTCAGTTC CATCCACAAC	3300
CTTAAACAG TGTTTTGAGY TGACHTTCGT CAGTTCCATC TACAACCTTA AAACAGTGT	3360

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TTGAGCTGCC CGCAGCTAGT TTCCTAGTTT GCTCTTTGAT TTTCATTGAG TATTACTTCA	3420
TTTTCTTCTG AAATGGAATT GTTACCCAGT CTATGCTATT GAAAATACGC CAAAACCTCT	3480
AAGGGTTTGT GAGCGATATA ATCAGGTTGA TAGTTTAGTA GATCTGCTTG CTCTCCAAAT	3540
CCCCAAGTGA TGGCCAATTT CTGAATACCT GTTCTCGAG CTCCCAGCAT ATCAAACCTG	3600
GTATCTCCGA TGATGATGGC TTGTTCTGGT GCTAGTTGAT GTGTCTGCAA GGCTTGGTGA	3660
ATGACATCTG CTTATGGGG TGCTTCAGGG CTAGAACCAT AAATGCCATC AAAGAAATGA	3720
TGGATTTCOA AGTTTTTTCG CATGTCTTGA GCAGTAGATG TATCCTTTGT CGTGGTGATG	3780
TAGAGTGGAT AACTGCTCGA TAACTCCTCA AGCAAGTCTA TAATCTGAGG AAAGAGTTGA	3840
GCTTCATAGA TGCTTTTTCG CTTATAGTAA GAACGATATA TCTGCACGGC TTCAGAAATT	3900
TGGTCTTTGG ACAGGCAGGT CGCAAACTA CTTTCGAGAG GTGGTCCCAT AAAACCACGA	3960
ATAGTTTTGG CATCAGGGCT AGGCACCCCC AGCTCTTTAA AGGTATAGGT AAAGGCATTG	4020
TGAATCCCGA TAGAACTATC AACGAGGGTT CCATCCAAAT CGAAAAAAT CGCTGTGATA	4080
GAGGTCATGG TTTCTCCTAT TTGATAAGCT TATTCTCCGA AAATTTCTTT TTGGAGGCCA	4140
CGACCAGTAG GGGTGGTAGC GAGTCCACCT TCAGCTGTTT CACGAAAGGC AGTTGGCATG	4200
CTTGCTCCTA CTTGGTACAT GGCATCGATC ACTTCATCCA CAGGGATTTT AGATTGATA	4260
CCTGCCAAGG CCATGTCTGC TGCGATGAAA GCAAAGCTAG CTCCCATGGC ATTACGTTTG	4320
ACACAGGGAA CTTGACCAA ACCTGCAACA GGGTCACAGA TGAGGCCTAG CATATTTTTA	4380
ATGACAAAGG CAATAGCTTG ACTGGCCTGA TAAGGTGTTT CACCTGCAGC CAGAGTCAAG	4440
GCGGCAGCAC TCATAGCAGA GGCTGAACCA ACTTCAGCTT GACACCCACC CTCAGCACCT	4500
GAGATGGAGG CATTGTTTGC GATGACTAGT CCAAAGGCAC CAGCAGCAA GAGGAAATCC	4560
AATTGTTGCT CGTGGCTGAG GTCTAATTTT TCAATAGCAG CAGTGAGAAC GGATGGCAGA	4620
CAGCCAGCAC TTCCAGCGGT TGGAGTGGCA CAGACCAAGC CCATTTTGGC ATTGTGTTCA	4680
TTGACTGCCA TGGCATTTTC GGCAGCCGAG AGAATCGTAT AATCTGACAG AGTTTTTCCG	4740
TTTTCGATGT AGTGATCCAA TTTGGCAGCA TCTCCACCTG TCAGGCCACT ACGAGATTTA	4800
TTTTCATGA GGCCAAGTTG GACAGAGGCT TTCATACTT CCAGATTGCG TTCCATGAGA	4860
AGGAAGACTT CTTACGTTT CCGACCGGTC AATTCAACT CTGTTGTAAT CATGAGTTCT	4920
GCGACATTTT CTTGAAAGTC CAGATCTGCT TGCTCGACCA ATTCTTTGAT AGAATAAAAC	4980
ATGCTTCCTC CTATTTAAAG AAATTGACAT TGTGGAGATG AGGGATTTT CGAATTTCTT	5040
CGATAGCCTC ATCAGATTG CGACTGTCAA CTTGATAAT CATAATGGCT TTTTCACCAG	5100

1052

CTTTTTCACG AGTGACATTC ATCTGGGCGA TATTGATACC ATAGCGGGAA AGCGCCTCTG	5160
TAACAAGGGC AATCATACCT GGAATATCTT GATGAACGAT GATGATAGTC GGTGTATTCA	5220
TATTGAGAGA GACGGCAAAA CCATTGAGTT CGGTACCTG AATATTTCTT CCACCGATAG	5280
AAATACCACT CACGCTGATG GTCTTGTGGG CATTTTAAAC AGTAATTTTA GTGGTGTTAG	5340
GGTGAGGGGC ATTGCTGTCT TTCTGAATGG TCCAGACAAT CTTGATACCA CGCTTGTGGG	5400
CAATTTCCAG ACTATTTGGA ATTTCAAGGAT CATCTGTATC CATTCTCTAA ATACCTGCAA	5460
CAAGGGCTAG GTCTGTTCGG TGACCACGAT AGGTCTTGGC AAATGAGTTA AAAAGTTGGA	5520
ATTCAACTTC TGTCGGAGTA TCATCAAAAA TGAAGAGAC AATCTTCCCA ATACGAACAG	5580
CACCAGCGGT ATGGCTACTA GATGGGCCAA TCATAACTGG TCCGATGATA TCAAAGACAG	5640
ATTGAAAACG AAGTGATTTC ATCAGTTTCC CTTTATAAAA ATTCTTATCT CTATTATATC	5700
AAAGAATGAG GGGCTTGGCT TTAATTGTGG ATGAAAACCT TTCTAATACC TCAAATAGCA	5760
TAAAAATAGT ATCTTTTATG ACAAAAAACA CTTATTTAG GGAAATAAAA AATAATTTTG	5820
TAATATTTCT ACATAAAAGT GTCAAGAAAC GGTAATATTT AAAGGGTATG ATAGAACTAT	5880
AGAAAGAAGG AGAATTTTCG AATATGAAAT CAATACTAA AAAGATTAAA GCAACTCTTG	5940
CAGGAGTAGC TGCCTTGTTT GCAGTATTTG CTCCATCATT TGTATCTGCT CAAGAATCAT	6000
CAACTTACAC TGTTAAAGAA GGTGATACAC TTTCAGAAAT CGCTGAAACT CACAACACAA	6060
CAGTTGAAAA ATTGGCAGAA AACAACCACA TTGATAACAT TCATTTGATT TATGTTGATC	6120
AAGAGTTGGT TATCGATGGC CCTGTAGCGC CTGTTGCAAC ACCAGCGCCA GCTACTTATG	6180
CGGCACCAGC CGCTCAAGAT GAACTGTTT CAGCTCCAGT AGCAGAAACT CCAGTAGTAA	6240
GTGAAACAGT TGTTTCAACT GTAAGCGGAT CTGAAGCAGA AGCCAAAGAA TGGATCGCTC	6300
AAAAAGAATC AGGTGGTAGT ATACAGCTAC AAATGGACGT TATATCGGAC GTTACCAATT	6360
AACAGATTCA TACCTGAACG GTGACTACTC AGCTGAAAAAC CAAGAACGGG TACCG	6415

## (2) INFORMATION FOR SEQ ID NO: 163:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 8494 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 163:

TACCCCTTTC GAATTTTGGC AAAAATTCGG TAAGGCTTTG ATGGTAGTTA TCGCGGTTAT	60
CCCCGGCTGCT GGTTTGATGA TTTCAATCGG TAAGTCTATC GTGATGATTA ACCCAACCTT	120

1053

TGCACCACTT GTCATCACAG GTGGAATTCT TGAGCAAATC GGTGGGGGG TTATCGGTAA	180
CCTTCACATT TTGTTTCCCC TAGCCATTGG AGGAAGCTGG GCTAAAGAAC GTGCTGGTGG	240
TGCTTTCCGC GCTGGTCTTG CCTTCATCTT GATTAACCGT ATCACTGGTA CAATCTTTGG	300
TGTATCAGGC GATATGTTGA AAAATCCAGA TGCTATGGTA ACTACTTTCT TTGGTGGTTC	360
AATCAAAGTT GCTGATTACT TTATCAGTGT TCTTGAAGCT CCAGCCTTGA ACATGGGGGT	420
ATTCGTAGGG ATTATCTCAG GTTTGTAGG GGCAACTGCT TACAACAAAT ACTACAACCT	480
CCGTAAACTT CCTGATGCAC TTTCATTCTT CAACGGGAAA CGTTTCGTAC CATTTGTAGT	540
TATTCTTCGT TCAGCAATCG CTGCAATTCT ACTTGCTGCT TTCTGGCCAG TAGTTCAAAC	600
AGGTATCAAT AACITCGGTA TCTGGATTGC CAACTCACAA GAAACTGCTC CAATTCTTGC	660
ACCATTCTTG TATGGTACTT TGGAACGTTT GCTCTTGCCA TTGGTCTTC ACCACATGTT	720
GACTATCCCA ATGAACTACA CAGCTCTTGG TGGTACTTAT GACATTTTAA CTGGTGCAGC	780
TAAAGTACT CAAGTATTCG GTCAAGACCC ACTATGGCTT GCATGGGTAA CAGACCTGT	840
AAACCTTAAA GGTACTGATG CTAGTCAATA TCAACACTTG TTAGATACAG TACATCCAGC	900
TCGTTTCAAA GTTGGACAAA TGATCGGTTT ATTCGGTATC TTGATGGGTG TGATTGTTGC	960
TATCTACCGT AATGTTGATG CTGACAAGAA ACATAAATAC AAAGGTATGA TGATTGCAAC	1020
AGCTCTTGCA ACATTCTTGA CAGGGGTAC TGAACCAATC GAATACATGT TCATGTTTAT	1080
CGCAACACCT ATGTATCTTG TTTACTCACT TGTTCAGGT GCTGCCTTCG CTATGGCTGA	1140
CGTCGTAAAC CTACGTATGC ACTCATTCCG TTCAATCCAG TTCTTGACTC GTACACCTAT	1200
TGCAATCAGT GCTGGTATTG GTATGGATAT CGTTAACTTC GTTTGGGTAA CTGTTCTCTT	1260
TGCTGTAATC ATGTACTTTA TCGCAAACCT CATGATTCAA AAATCAACT ACGCAACTCC	1320
AGGGCGCAAC GGAAACTACG AAACTGCTGA AGGTCAGAA GAAACCAGCA GCGAAGTGAA	1380
AGTTGCAGCA GGCTCTCAAG CTGTAAACAT TATCAACCTT CTTGGTGGAC GTGTAAACAT	1440
CGTTGATGTT GATGCATGTA TGAATCGTCT TCGTGTAAT GTTAAAGATG CAGATAAAGT	1500
AGGAAATGCA GAGCAATGGA AAGCAGAAGG AGCTATGGGT CTTGTCTATGA AAGGACAAGG	1560
GGTTCAAGCT ATCTACGGTC CAAAAGCTGA CATTTTGAAG TCTGATATCC AAGATATCCT	1620
TGATTCAGGT GAAATCATTC CTGAACTCT TCCAAGCCAA ATGACTGAAG CACAACAAAA	1680
CACTGTTTCA TTCAAAGATC TTAATGAGGA AGTTTACTCA GTAGCAGACG GTCAAGTTGT	1740
TGCTTTGGAA CAAGTAAAGG ATCCAGTATT TGCTCAAAAA ATGATCGGTG ATGGATTTGC	1800
AGTAGAACCT GCAATGGA ACATTGTATC TCCAGTTTCA GGTACTGTGT CAAGCATCTT	1860

1054

CCCAACAAAA	CATGCTTTTG	GTATTGTGAC	GGAAGCAGGT	CTTGAAGTAT	TGGTTCACAT	1920
TGGTTTGGAC	ACAGTAAGTC	TTGAAGGTAA	ACCATTTACA	GTTTCATGTTG	CTGAAGGACA	1980
AAAAGTTGCA	GCAGGAGATC	TCCTTGTCAC	AGCTGACTTG	GATGCTATCC	GTGCAGCAGG	2040
ACGTGAAACT	TCAACAGTAG	TTGTCTTCAC	AAATGGTGAT	GCAATTAAAT	CAGTTAAGTT	2100
AGAAAAACA	GGTTCTCTTG	CAGCTAAAAC	AGCAGTTGCT	AAAGTAGAAT	TGTAATATAC	2160
TTGAGGTTGG	AAGCTGTATT	CCAACCTCTT	ATTTTGGGAG	AAAAGAATGA	AATTTTAAAC	2220
ACTCAATACT	CACAGTTGGA	TGGAGAAAGA	AGCAGAGGAA	AAATTCAGAG	TTTTCGCTGA	2280
AGATATTCTT	GAAAAGGACT	ATGATTTGAT	TTGTTTTCAA	GAAATCAATC	AGGAGATGAC	2340
CTCGTCAGAG	GTGGAGGTTA	ATGACCTTTA	TCAAGCTTTG	CCAGCAGCTG	AGCCTATTC	2400
CCAAGACCAT	TATGTTAGAC	TCTTGGTTGA	AAAGTTGTCT	GAGCAAGGGA	AAAATTACTA	2460
CTGGACCTGG	GCCTATAACC	ATATCGGCTA	TAACCGCTAC	CACGAAGGTG	TGGCTATCTT	2520
GTCTAAAACA	CCTATTGAAG	CCAGAGAAAT	TTTGGTTTCA	GATGTGGATG	ATCCAACAGA	2580
CTATCATACT	CGCCGTGTTG	CCCTAGCTGA	AACTGTAGTC	GATGGCAAGG	AGCTAGCAGT	2640
TGCCAGTGTT	CATCTCTCTT	GGTGGGATAA	AGGTTTCCAA	GAAGAATGGG	CACGATTTGA	2700
GGCTGTCTTG	AAAAAATTGA	ACAAGCCACT	TTTACTAGCT	GGAGATTTCA	ACAATCCGGC	2760
TGGACAGGAA	GGTTACCAAG	CTATTTTAGC	TAGTCCATTA	GGCTTACAAG	ACGCATTTGA	2820
AGTTGCTCAA	GAGAAAAGTG	GTAGCTATAC	TGTTCCGCCT	GAAATTGATG	GCTGGAAAGG	2880
GAACACTGAA	CCCCTTCGAA	TCGATTATGT	CTTTACTACC	AAAGAGTTAG	CGGTGGAAAA	2940
TTTACATGTC	GTATTTGATG	GTAACAAGAG	TCCACAAGTG	AGTGATCACT	ATGGCTTGAA	3000
TGCTATATTA	AACTGGAAAT	AATAACTGAA	AAGAGTTTGG	AACTATAAAA	TTCCAGCCTT	3060
TTCTTACTAG	AGAAGCTACT	GGAAATAGCC	TAAATAAGTG	AGACTACTGT	AATGGAATAA	3120
AATATGGTAT	AATTGATAAG	GTAGATAGAA	TCGAGGATGT	TATGTCATTT	ACGAAATTTC	3180
AATTTAAAAA	CTATATTAGA	GAAGCCTTGA	AGGAGTTAAA	ATTTACAAC	CCAACAGAGG	3240
TGCAAGACAA	GTTGATTCCT	ATTGTTTTGG	CAGGTCGTGA	CCTAGTAGGA	GAATCAAAAA	3300
CAGGTTTCAGG	TAAGACTCAT	ACTTCTTGT	TACCGATTTT	CCAGCAATTA	GATGAAGCTA	3360
GGGATAGTGT	ACAAGCAGTG	ATTACTGCAC	CGAGTCGTGA	GTTGGCTACT	CAAATTTACC	3420
AAGTAGCGCG	TCAGATTTCA	GCTCACTCAG	ATGTCGAAGT	TCGTGTGGTT	AATTATGTGG	3480
GTGGTACGGA	TAAGGCTCGC	CAGATTGAGA	AATTGGCAAG	CAATCAGCCT	CATATTGTTA	3540
TTGGAACACC	AGGCCGTATC	TACGACTTGG	TTAAATCTGG	TGATTTAGCT	ATTCATAAAG	3600
CCAAGACATT	TGTTGTTGAT	GAAGCAGATA	TGACCTTGGA	TATGGGATTC	TTGGAAACTG	3660

1055

TTGATAAGAT TGCTGGCAGT CTTCCAAAAG ACTTGCAATT CATGGTCTTC TCAGCGACTA	3720
TCCCACAAAA ACTGCAACCA TTCTTGAAAA AATACTTATC AAATCCTGTT ATGGAGAAAA	3780
TTAAGACCAA AACGGTTATT TCTGACACCA TTGATAATTG GTTGATTTCG ACCAAGGGAC	3840
ATGATAAGAA TGCTCAAATT TACCAGTTGA CTCAGTTGAT GCAGCCGTAT TTGGCAATGA	3900
TTTTTGTTAA CACTAAAACG CGTGCTGATG AATTGCATTC ATATCTGACT GCTCAAGGCT	3960
<hr/>	
TGAAGGTTGC AAAATCCAT GCGGATATTG CCCCTCGTGA ACGCAAGCGA ATCATGAATC	4020
AGGTGCAAAA TCTGGATTTT GAGTATATTG TCGCAACAGA TTTGGCAGCG CGTGGGATTG	4080
ACATTGAAGG TGTCAGCCAT GTCATCAATG ATGCCATTCC GCAAGACTTA TCTTTTPTTG	4140
TTTCATCGTGT TGGTCGTACT GGACGAAATG GCCTACCAGG TACAGCTATT ACCCTTTATC	4200
AGCCAAGTGA TGACTCGGAT ATCCGTGAGT TGGAGAAATT GGGAATCAAG TTTAGTCCTA	4260
AGATGGTCAA AGACGGGGAA TTTCAAGATA CCTATGACCG TGATCGTCGT GCCAACCGTG	4320
AGAAAAACA AGATAAACTT GATATCGAAA TGATTGGTTT GGTTAAAAAG AAAAGAAAA	4380
AAGTCAAACC GGGTTATAAG AAGAAAATTC AATGGGCGGT TGATGAAAAG CGCCGTAAAA	4440
CCAAGCGTGC TGAATTCGC GCTCGCGGTC GTGCAGAGCG TAAAGCTAAA CGCCAAACAT	4500
TTTAATAGAA ATTGTTGGAG TATTGAGCTC CAACTTTTTT ATTTATGAGA ACGAACTATC	4560
TAAACCGAAA CACTACATTA AAGACTGCAA ATTGCGATTA AAAATGGTAT AATGATAAAG	4620
TTATATAGTC CCGATAAGAT GGTAGGTATT TATTACGAAG AGTTTTCTTA TCAGTACTTT	4680
GTAACCTCTAT AACAATATTT TTTAAGGGGG GACATTTTTA TGTCAGAGCG TAAATTATTC	4740
ACGTCTGAAT CTGTATCTGA GGGGCATCCG GATAAGATTG CAGACCAAAT TTCAGATGCG	4800
ATTTTGATG CTATTTTAGC AAAGGATCCA GAGGCGCAGC TTGCTGCTGA AACAGCTGTA	4860
TATACTGGTT CTGTCCACGT TTTTGGTGAA ATTTCTACAA ATGCCTATGT GGATATTAAC	4920
CGTGTGGTTC GTGATACCAT TGCAGAGATT GGTATACCA ATACAGAATA TGGATTTTCT	4980
GCTGAGACGG TGGGAGTACA CCCATCTTTG GTGGAACAAT CTCCTGACAT CGCTCAAGGT	5040
GTTAACGAAG CCTTGGAGGT TCGTGGAAT GCTGATCAAG ATCCACTGGA CTTGATTGGA	5100
GCAGGTGACC AAGGGCTCAT GTTTGGATTT GCAGTAGATG AAACAGAAGA GCTTATGCCA	5160
TTGCCAATTG CACTCAGTCA TAAATTGGTT CGTCGTCTGG CAGAACTTCG TAAGTCTGGA	5220
GAAATTAGCT ATCTCCGTCC AGATGCAAAA TCACAAGTTA CAGTTGAGTA CGATGAAAAT	5280
GACCGTCCGG TACGTGTAGA TACAGTCGTT ATTTCTACTC AGCATGATCC AGAGGCCACT	5340
AATGAACAAA TCCATCAAGA TGTGATTGAC AAGGTCATCA AAGAAGTTAT TCCATCTTCT	5400

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TATCTTGATG	ATAAGACAAA	ATTCTTTATC	AATCCGACAG	GTCTTTTGT	AATCGGTGGT	5460
CCTCAAGGGG	ACTCAGGTTT	GACTGGTCGT	AAGATTATTG	TAGATACTTA	TGGTGGCTAC	5520
TCTCGTCATG	GTGGTGGTGC	CTTCTCTGGT	AAAGATGCCA	CTAAGGTGGA	TCGTTCAGCC	5580
TCTTATGCGG	CTCGCTATAT	TGCCAAGAAT	ATCGTTGCAG	CAGACCTTGC	TAAGAAGGCA	5640
GAAGTGCAGT	TGGCCTATGC	TATCGGTGTT	GCGCAACCTG	TTTCTGTTCT	TATCGATACT	5700
TTCCGTACAG	GAACAGTAGC	TGAAAGTCAA	CTTGAAAAAG	CGGCTCGTCA	AATCTTTGAC	5760
CTTCGCCCTG	CAGGGATTAT	CCAAATGCTG	GACCTCAAGC	GTCCAATTTA	CCGTCAAACA	5820
TCGGCTTACG	GTCACATGGG	ACGTACAGAT	ATTGATCTTC	CATGGGAACG	TTTGGATAAG	5880
GTAGATGCTT	TGAAAGAAGC	AGTAAAATAA	GATTTTAAGA	GGGGAACGTC	CTCTCTTTT	5940
TATAGTTTTT	AACTATACTG	GGATACTGTT	CTGAAAATCC	ATTTTGCGAA	AGTAGAGATT	6000
TACATGTATA	GATAGTTGAA	ACTAGAATAG	TACACCTCAA	CTTCTAAAAC	ATTGTTAGCA	6060
ATCAATTTGA	CTGTCCTGAT	CGATTTCTCC	TGTTCTTGTT	TCATTTTACT	ATATTTCTTT	6120
AAAAATGATA	AAGGTTAAGA	TTTCTCCTCG	TAATAGATAA	TCTTGGGGAT	ATTTCAATCC	6180
AAAGTTTTAT	TCGTTATCAC	TTGACTATTG	CAAGGTTTTC	TAGAGCAACA	GAGTCATGGA	6240
ATGGACTCAT	GGTTGAGATT	TCTCCTTGTT	GCTTGGACTT	CATTCAAAAG	TCTGTTACCC	6300
AAGCCTTGTT	CAAACTTCTA	ATACACTAGC	TGTTTCCATA	GCATGACTTC	TGTACTAGAC	6360
TTTCTTTTCC	GAATAAATAG	ATAGAACCAC	AGAATCTAGT	AAACCTAGAA	TTAAAATTAT	6420
GGTATAATAT	TAGCAATAAA	AGAAATCTGG	AGGATTAGAA	TCATGGTATC	AACGAAAACA	6480
CAAATTGCTG	GTTTTGAGTT	TGACAATTGC	TTGATGAATG	CAGCAGGTGT	GGCTTGATG	6540
ACGATAGAGG	AGTTAGAAGA	GGTCAAAAAC	TCAGCGGCAG	GAACCTTTGT	TACTAAGACA	6600
GCGACCTTGG	ACTTCCGTCA	GGGGAATCCT	GAGCCACGCT	ACCAAGATGT	TCCACTTGGT	6660
TCCATCAACT	CTATGGGCTT	GCCAAATAAT	GGCTTAGACT	ATTATTTGGA	TTATCTTTTA	6720
GATTTGCAGG	AAAAAGAGTC	GAACCGAACT	TTCTTCTTAT	CTCTGGTCGG	CATGTCTCCA	6780
GAGGAAACCC	ATACTATTTT	GA AAAAAGTC	CAAGAGAGTG	ATTTTCGTGG	TCTGACTGAG	6840
CTAAATCTTT	CCTGTCCAAA	TGTTCCAGGT	AAACCTCAGA	TTGCCTATGA	TTTTGAGACA	6900
ACAGACCGGA	TTTTGGCAGA	AGTGTTCGCT	TACTTCACCA	AACCTCTTGG	AATTAAATTG	6960
CCACCTTATT	TTGATATTGT	TCACCTTGAC	CAAGCGGCAG	CTATTTTCAA	CAAATATCCG	7020
CTCAAGTTTG	TCAACTGCGT	TAACTCTATC	GGAAACGGCC	TCTATATAGA	AGACGAATCT	7080
GTCGTTATTC	GGCCTAAGAA	TGGTTTTGGT	GGAATTGGTG	GAGAATACAT	CAAACCGACT	7140
GCTTTAGCCA	ATGTTACGCG	CTTTTATCAA	CGTTTAAATC	CTCAAATCCA	AATTATCGGA	7200



1057

ACAGGTGGCG TTCTGACTGG TCGAGATGCC TTTGAACACA TCCTCTGTGG AGCAAGTATG	7260
GTGCAGGTGG GAACGACCCT TCACAAAGAA GGCCTCAGTG CTTTGTACCG CATTACCAAT	7320
GAAGTGAAG CAATCATGGT GGAAAAAGGC TACGAGAGCT TAGAAGATTT CCGTGGGAAA	7380
TTGCGCTATA TTGACTAAAT TAAATCGAAA AATCTGAAGA AAGGAGAGAC GATGCTAGCC	7440
ATTGAAGAAA GTCAGAAGTT GACTTTATCA AATTTACCGA GCCTGAGCCT ATTTACAGGG	7500
ACAGATCAGG GTCAGTTTGA AGTGATGAAG AGTCAAATGT TGAAACAGAT TGGGTATGAT	7560
TCTGCTGACC TCAACTTTGC CTACTTTGAT ATGAAAGAAG TAGTTTACAA GGATGTGGAA	7620
CTGGAGTTGG TCAGCCTTCC TTTCTTTGCG GATGAGAAAA TCGTGATATT AGATTATTTT	7680
ATGGATATCA CGACTGCTAA GAAACGCTTT TTGACAGATG ATGAGCTTAA GTCATTTGAG	7740
GAATACCTTG ACAATCCTTC TCCAACAACC AAGTTGATAA TCTTTGCAGA AGGAAAGCTG	7800
GATAGCAAAA GACGGTTACT CAAATTACTT AAGCGTGATG CCAAGGCCTT CGATGCAGTA	7860
GAAGTAAAAG AACAAGAATT GCGCCAGTAC TTCCAAAAGT GGAGTCAGAA ACAAGGTCTG	7920
CAGTTTACCA ATCATTCTTT TGAAAATCTC CTCATCAAGT CGGGGTTTCA ATTTAGCGAA	7980
ATCCAGAAAA ATCTTCTCTT TTTACAGTCC TATAAGGCGA ATTCTGTTAT TGAGGAAGAG	8040
GATATTGTTA ACGCAATTCC CAAGACTTGC AGGACAATAT TTTTGATTTA ACTCAGTTTA	8100
TTCTGACTAA AAAGATGGAT CAGGCGCGCG ATTTGGTGAG AGACTTGACC TTGCAAGGGG	8160
AAGATGAAAT CAAACTGATT GCAGTCATGC TGGGACAATT TCGGACTTTT ACTCAGGTGA	8220
AGATTTTGGC GGAGTCTGGC CAAACAGAAT CGCAGATTGC AAGTAGTTTA GGTAGTTATC	8280
TGGGACGTAA CCCAAATCCT TATCAAATCA AGTTTGCATT AAGAGATTCG AGAGGACTTT	8340
CTTTGAGCTT TTTGAAGCAA GCTATTCCT ATTTGATTGA GACAGACTAT CAGATTAAGA	8400
CAGGTCTTTA TGAAAAAGGT TTCCTTTTGG AAAAGGCACT CTTACAGATT GCTAGTCAGG	8460
TCAATTGACA TTTGTTGAAA CTACTAACCC GCGG	8494

(2) INFORMATION FOR SEQ ID NO: 164:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 9707 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 164:

CCGGTCAGTT CGTTCAGTAC AAGGAATCAT AATGAACGAT CAATCAGAAA AAAAGACTAG 60

1058

AAAGAAGACT GTATGGATAA TCGACCAATT GGTTTTTTGG ATTCTGGGTGT CGGGGGCTTG	120
ACCGTTGTGC GCGAGCTCAT GCGCCAGCTT CCCCATGAAG AAATCGTCTA TATTGGAGAT	180
TCGGCGCGGG CGCCCTATGG CCCCCGTCCT GCTGAGCAAA TTCGTGAATA TACTTGCCAG	240
CTGGTCAACT TTCTCTTGAC CAAGGATGTC AAAATGATTG TCATTGCTTG TAACACTGCC	300
ACTGCGGTCTG TCTGGGAAGA AATCAAGGCT CAACTAGATA TTCTGTCTT GGGTGTAATT	360
TTGCCAGGAG CTTCCGCAGC CATCAAGTCC AGTCAAGGTG GGAAAATCGG AGTGATTGGA	420
ACGCCCATGA CGGTACAATC AGACATATAC CGTCAGAAAA TCCATGATCT GGATCCCGAC	480
TTACAGGTGG AGAGCTTGGC CTGTCCCAAG TTTGCTCCCT TGGTTGAGTC AGGTGCCCTG	540
TCAACCAGTG TTACCAAGAA GGTGGTCTAT GAAACCTGC GTCCCTTGGT TGGAAAGGTG	600
GATAGCCTGA TTTTGGGCTG TACTCATTAT CCACTCCTTC GCCCTATTAT CCAAAATGTG	660
ATGGGGCCAA AGGTCAGCT CATCGATAGT GGGGCAGAGT GCGTACGGGA TATCTCAGTC	720
TTACTCAATT ATTTTGAAAT CAATCGTGGT CGCGATGCTG GACCACTCCA TCACCGTTTT	780
TACACAACAG CCAGTAGCCA AAGTTTGTGA CAAATTGGTG AAGAATGGCT GGAAAAAGAG	840
ATTCATGTGG AGCATGTAGA ATTATGACAA ATAAAAATTA TGAATATAAG GATGACCAGG	900
ACTGGTATGT TGGGTCTTAT AGTATTTTGT GTGGCGTTAA CAGTTTGAGC GACTATAAGA	960
CAGATTTTCC TCTGTTTGAA TTCTCCAAAA TATTTGGAGA TGAAGAGTAT GGTTTCCCGC	1020
TTTCAGTTAC TGTTTTACGC TATGGTTCTA TCTACCGTTT GTTCTCCTTT GTGGTAGACA	1080
TGCTTAATCA AGAAATGGGA CGAAACTTGG AAGTTATTCA ACGTCATGGG GCCCTGCTCT	1140
TGGTTGAAAA TGGGCAACTC TTGTATGTAG AATTGCCTAA AGAAGGGGTC AATGTTTCATG	1200
ATTTCTTTGA GACAAGCAAG GTCAGAGAAA CCTTGTGAT TGCCTGCTGT AACGAAGGTA	1260
AAACCAAGGA ATTCCGAGCT ATCTTTGATA AGTTAGGCTA CGATGTGGAA AATCTTAATG	1320
ACTACCCTGA CCTGCCTGAA GTAGCAGAAA CAGGTATGAC CTTTGAAGAA AATGCCCGCC	1380
TTAAGGCAGA AACCATTCT CAATTAACGG GCAAGATGGT TTTGGCAGAT GATTCTGGTC	1440
TCAAAGTCGA TGTCTTGGT GGCTTACCAG GCGTCTGGTC AGCTCGTTTC GCAGGTGTGG	1500
GAGCAACTGA CCGTGAAAAAT AATGCCAAAC TCTTGACGA ATTGGCCATG GTCTTTGAAC	1560
TCAAGGACCG CTCGGCTCAG TTCCACACAA CCCTAGTCGT AGCCAGCCCA AATAAGGAAA	1620
GTTTAGTTGT TGAAGCAGAC TGGTCAGGTT ATATTAACTT TGAACCTAAG GGTGAAAATG	1680
GCTTTGGCTA TGATCCCCTC TTCCTTGTAG GAGAAACAGG TGAGTCATCA GCTGAATTAA	1740
CCCTGGAAGA AAAAAATAGT CAATCTCACC GTGCCTTAGC CGTTAAGAAA CTTTGGAGG	1800
TATTTCCATC ATGGCAAAGC AAACCATCAT TGTAATGAGC GATTCCCATG GCGATAGCTT	1860

1059

GATTGTGGAA GAAGTCCGTG ATCGCTATGT GGGCAAAGTC GATGCTGTTT TTCATAACGG	1920
CGATTCTGAA CTACGTCCGG ATTCTCCACT TTGGGAGGGC ATCCGCGTTG TTAAGGGAA	1980
CATGGACTTC TACGCCGGCT ACCCAGAACG TCTGGTGA CTGAGCTTGGTT CGACCAAGAT	2040
TATCCAAACT CATGGTCACT TGTTTGACAT CAATTTCAAC TTCAAAAGT TGGACTACTG	2100
GGCTCAGGAG GAAGAGGCCG CTATCTGCCT CTATGGTCAC TTGCATGTGC CAAGTGCTTG	2160
GTGGAAGGC AAGATCCTCT TTCTAAATCC AGGTTCTATC AGTCAACCAC GAGGTACCAT	2220
CAGAGAATGT CTCTATGCTC GTGTGGAGAT TGATGATAGT TACTTCAAAG TGGACTTTTT	2280
GACACGAGAT CACGAGGTGT ATCCAGGTTT GTCCAAGGAG TTAGCCGAT GATTGCCAAG	2340
GAGTTTGAGA CTTTCTTGTT GGGGCAGGAG GAAACTTTTT TGACCCCTGC TAAAACTA	2400
GCTGTGTTGA TTGATACCCA CAATGCGGAT CATGCGACCC TCTTGCTCAG TCAGATGACC	2460
TATACCCGTG TTCCCGTTGT GACAGATGAA AAACAGTTT TGGGACGAT TGGACTCAGA	2520
GATATTATGG CTTATCAGAT GGAGCATGAC TTGAGCCAAG AAATCATGGC GGATACGGAT	2580
ATCGTTCATA TGACAAAAC GGACGTAGCG GTTGTTTCGC CTGATTCAC CATTACGGAG	2640
GTCTTGACA AGCTAGTAGA TGAGTCCTTC TTACCGGTTG TGGATGCAGA GGGTATTTTC	2700
CAAGGGATTA TTACGCGCAA GTCCATCCTC AAGGCCGTTA ATGCCCTCTT GCATGACTTT	2760
AGTAAGGAAT ATGAGATTCG ATGCCAATGA GAGACAGGAT TTCAGCCTTT TTAGAGGAAA	2820
AGCAGGGCTT GTCTGTCAAT TCCAAGCAGT CCTATAAGTA TGATTGGAG CAATTTTTAG	2880
ACATGGTAGG TGAGCGGATT TCTGAGACCA GTCTCAAGAT TTACCAAGCC CAGCTAGCCA	2940
ATCTAAAAAT CAGCGCCAG AAGCGAAAGA TTTCGGCCTG TAACCAATTT CTATACTTTC	3000
TCTATCAAAA AGGAGAGGTG GACAGCTTTT ACCGCTTGA ATTAGCCAAA CAAGCTGAAA	3060
AGAAGACGGA AAAGCCAGAG ATTCTATACC TAGACTCTTT TTGGCAGGAA AGCGACCATC	3120
CAGAGGGCCG CTTGCTAGCG CTCTTAATCC TAGAAATGGG GCTCTTGCCC AGTGAGATTT	3180
TAGCCATCAA GGTGCGGAC ATCAATCTGG ATTTTCAGGT GTTGCGAATC AGCAAGGCTT	3240
CCCAACAGAG GATTGTCACC ATTCCCACGG CCTTGCTTTC AGAATTGGAA CCCTTGATGG	3300
GGCAGACCTA TCTTTTGAA AGAGGAGAGA AACCTATTTC TCGTCAGTGG GCCTTTCGTC	3360
AGTTAGAATC TTTTGTCAAG GAGAAAGGTT TTCCATCCTT ATCAGCTCAA GTCTTACGTG	3420
AACAGTTTAT TCTAAGACAA ATAGAAAACA AGGTCGATTT GTACGAAATT GCAAAAAAAT	3480
TAGGATTAAA AACAGTCCTG ACCTTAGAAA AATATAGATA ATGGATATTA AATTAAGA	3540
TTTTGAAGGA CCCCTGGACT TGCTCTTGCA TCTGGTTTCT AAGTACCAGA TGGATATCTA	3600

1060

CGATGTGCCC ATTACGGAAG TCATCGAACA GTATCTAGCC TATGTCTCAA CCCTGCAGGC	3660
CATCGCTCTG GAAGTGACGG GTGAGTACAT GGTCTGGCT AGTCAGCTCA TGCTGATTAA	3720
GAGTCGTAAA CTCCTTCCGA AGGTAGCAGA AGTGACAGAC TTGGGGGATG ACCTGGAGCA	3780
GGACCTCCTC TCTCAAATCG AAGAATATCG CAAGTTCAAG CTCTTGGGTG AGCACTTGGA	3840
AGCCAAGCAC CAAGAACGGG CCCAGTATTA TTCCAAAGCG CCGACAGAGT TGATTTACGA	3900
AGATGCGGAG CTTGTGCATG ACAAGACGAC CATTGACCTC TTTTGTGACTT TTTCAAATAT	3960
CCTAGCCAAG AAAAAAGAGG AGTTTGACA AAATCACACG ACGATCTTGC GGGATGAGTA	4020
TAAGATTGAG GACATGATGA TTATCGTGAA AGAGTCCTTG ATTGGACGAG ATCAATTGCC	4080
CTTGCAAGAT TTGTTCAAGG AAGCCCAGAA TGTCCAAGAG GTCATCACCC TCTTTTGGC	4140
AACCCTAGAG TTAATCAAAA CCCAGGAGTT GATCCTCGTG CAAGAGGAGA GTTTTGAGA	4200
TATCTATCTC ATGGAAAAGA AGGAAGAAAG TCAAGTGCCT CAAAGCTAGA CTTGATAGAG	4260
AGGAAAGATG AGTACTTTAG CAAAATAGA AGCGCTCTTG TTTGTAGCGG GTGAAGATGG	4320
GATTCGGGTC CGCCAGTTAG CTGAACTCCT CTCTCTGCCA CCGACAGGCA TCCAGCAAAG	4380
TTTAGGAAAA TTAGCCCAGA AGTATGAAAA GGACCCAGAT TCCAGTTTGG CTTTGATTGA	4440
GACAAGTGGT GCTTATAGAT TGGTGACCAA GCCTCAATTT GCAGAGATTT TGAAGGAATA	4500
CTCTAAGGCG CCTATCAACC AGAGCTTGTC TCGGGCTGCC CTTGAGACCT TGTCCATTAT	4560
TGCCTACAAA CAGCCGATTA CGCGGATAGA AATTGATGCC ATCCGTGGAG TTAACCTGAG	4620
TGGAGCCTTG GCAAAGTTGC AGGCTTTTGA CCTGATAAAG GAAGACGGGA AAAAGGAAGT	4680
ATTGGGGCGC CCCAACCTCT ATGTGACTAC GGATTATTTT CTAGATTACA TGGGGATAAA	4740
CCATTTAGAA GAATTACCAG TGATTGATGA GCTTGAGATT CAAGCCCAAG AAAGCCAATT	4800
ATTTGGTGAA AGGATAGAAG AAGATGAGAA TCAATAAGTA TATTGCCAC GCAGGTGTGG	4860
CCAGTAGGAG AAAAGCAGAA GAGCTGATTA AGCAAGGCTT GGTGACGGTT AACGGCCAAG	4920
TGGTGCGTGA ACTAGCAACC ACTATCAAGT CAGGCGACAA GGTGGAAGTT GAAGGTCAAC	4980
CTATCTACAA CGAAGAAAAG GTCTACTATC TGCTTAACAA ACCACGCGGT GTGATTCCA	5040
GTGTGACAGA TGATAAGGGT CGCAAGACGG TTGTCGACCT CTTGCCCAAT GTCAAAGAGC	5100
GTATTTACCC TGTGGGTCGT TTGGACTGGG ATACATCAGG TGTCTTGATT TTGACCAATG	5160
ATGGGGACTT TACAGACGAG ATGATTCACC CTCGTAATGA GATTGACAAG GTTTATGTCC	5220
CGCGTGTTAA AGGTGTGGCC AATAAGGACA ATCTCCGCCC CTTGACCCGT GGTCTTGAGA	5280
TTGATGGTAA GAAAACCAAG CCAGCTGTTT ATGAAATTCT CAAAGTGGAC CCAGTCAAAA	5340
ATCGCTCTGT GGTGCAGTTG ACCATCCATG AAGGGCGTAA CCATCAGGTT AAAAAGATGT	5400

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TTGAAGCTGT TGGTCTCCAA GTAGATAAGT TGTCTCGGAC TCGTTTCGGA CACCTAGACT	5460
TGACAGGACT CCGTCCAGGA GAATCCCGTC GTCTTAATAA AAAAGAAATC AGCCAACCTAC	5520
ACACCATGGC TGTAACCTAAG AAATAATGAA ACGAATTTTA ATAGCGCCTG TGCCTTTTAA	5580
CCAACGTTTT ATCTCACCAG TCTTTCCACC CTCTTGTCGC TTTGAGCTGA CTGTGTTCAA	5640
CTACATGATT CAGGCTATTG AAAACATGG GTTTAAGGGG GTATTGATGG GCTTGGCTCG	5700
GATTTTACGT TGTATCCCT GGTGAAAAC AGGTAAGGAC CCGTTCCAG ACCGCTTTTC	5760
CCTTAAACGA AATCAAGAAG GGAATGAGG TGGGGTAAAT AGATTTCAA ATGATAAAAA	5820
CGCATCCTAT CAGGTTTGAG TGAACCTGAT AGGATGCGTT TTAGAATGTC AAAATTTTAT	5880
ACTCTTCGAA AATCTCTTCA AACCCTGTC GCTTTCATCT GCAACCTCAA AACAGTGTTC	5940
TGAGCAACCT CCGGCTAGTT TCCTAGTTTG CTCTTTGATT TTCATTGAGT ATTAATTTGA	6000
GTTTGAAGTG GCTTATTTCA AAGCTTTTTG TATGCTTCA ATCATGAGTT TTGTGATTC	6060
AAGTCCGCT CCGCTTAGAT ACCAGAGGTC TGGTGTAGT TGGATAATCT TACCATTTT	6120
AGCAGCAGGT GTTTCAGCGA TAAGGGCATT TTCTAGGACA CCGTCGTTGC TAGAGTTGTC	6180
CCCACCGATG GCAAGGTAC GGTGATGAC AAAGAGGATG TCAGGGTTGA TTTCTTTGAC	6240
ACTTTCAAAG CTGACTTCTT GTCCGTGGCG TGAGTCTTCA AATTTGTAT CAGTTGGTTT	6300
GAATTTCAAG GTTTGGTACA AGAAAGAGAA ACGAGATTG GCACCAAAG CTGCCATTTT	6360
TCCTTCATTA AGGAGGATCG CAAGGGCTTT TTTGTCAGAG CTTTCATTTT TAGTAGCGAC	6420
TTCTTGGATG CTCTGTCTA GCTTGGTCAA TTCTTCCTTG GCTTCTGTG TACCAGTTTC	6480
GCCGAAGGCA CTTGCTAAGG ATTCGATATT AGCCTTGGTA GAAGTCCAGT AGTCGTCCTT	6540
GCTTGCTTGG AAGAGAACGG TTGGGGCGAT TTCTTTGAAT TTGTCTACGA ATTTTGTGT	6600
ACGTGGCGAA GCGATAATCA AATCAGGCTC AAGGGCGGCG ATAGCTTCTA AATCAGGTTC	6660
TTTCATAGAA CCAACATTTT TGACAGTTCC CACTAGGTCT TTTAGATAAG TCGGAACAGT	6720
TTTGTTAGGC ATTCCGACGA TATTTTTTTC AAATCCTAAA GCGCGAATAG TATCCGCAGC	6780
GCCGAGGTCA AAGGTCACAA TCTTTTCAGG AACTTTGGAA AGTTTGACCT COTCCAGTGA	6840
ACTTTTAATG GTTACCTCTG TTGGAGCAGA GCTACTGGTC TCTGTCTGAC TAGTGCTTGA	6900
GTTTGTACTA CATGCACCAA GTAGGAGCAA GAAGCTGGCC ACTAGGGCAG TGAAATAAAG	6960
TTTAAGGGAT GTTTTCATAA TTTCTCCTTT TTTAAATGTG ATAACGATTT AGGGAGTCTC	7020
TTAATCTTAT TGAATAAGAG ACTGAAGGTT CTCTAACTTG AGCTTTTATG TTAGTAGCTA	7080
TAGATACAGA TCTTTTGTG ATTGATATCA GCTAGCGTGA TGGGAATCTC ATAAAGTTGA	7140

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CTGAGCAGGT CAGCCTGCAT GATTTGATCG GTTCTTCCCT TGCTAAAGAC CTGGCCGTCC	7200
TTGAAGGCGA CAATTTTCATC TGCATACTGA CTGGCCATGT TGATATCGTG GAGGACGATG	7260
ATAATGGTCT TGCCGAGTTC CTCCACCAGT CGTCGAAGAA TCTGCATCAT GCTGACGCTT	7320
TGCTTGATAT CGAGATTGTT GAGTGGTTCG TCCAGCAAGA TAAAGTCCGT ATCCTGGGCC	7380
AGTACCATAG CGATAAAGAC GCGCTGGAGT TGCCCCCCTG ACAGGCTATT GATGTAGCGG	7440
TCTTTTAAGT TGGTCAGTTC TAAATAGTTC AGAGTTTCTC GGATTTTTTC CCAGTCTTCT	7500
GATCTAAGTC GACCTCGGCT GTAGGGAAAA CGTCCAAAAC TGACCAGTTC TTCAACAGTC	7560
AATTTGGCTT GGTAATTGAT TTTCTGTTTT AGGATGGTTA GTTCTTGGGC CAGTTCCTGC	7620
GAATTCACG TCTCGATTC ACGTCCTTTG ATACTGAGAA CTCCCTGATC TTTCTTGGTT	7680
AGCCTGCTCA TGATGGAGAG GAGAGTCGAT TTTCCAGCAC CATTTGGACC AATAAAGGCT	7740
GTCAGTTTTT GAGGACTGAC TTCAAGCGAA ATGCCTTGCA AAATATCCTG TTTTGAATG	7800
GATTTGTCAA TGTTTTCCAG TTTCACTGAC GAGACCTCCT ATATAGTAAG ATAAAGAATA	7860
AGAAGCCACC CACACTCTCA ATGATCATAC TGATACGAAT TTCCAGTGCA AAGACTCGTT	7920
CAATCAAGGC TTGCCCCAAG GTTAAGCTAA TAAATCCAAC CAGAATGGCC ACTATAAAGA	7980
GTAACCTGTG CTGATAGTCT TTGACAATCA GGTAGGTGAG GTTGGCCAGT ATAAAGCCGA	8040
AGAAGGCCAT AGGTCTTACC AAGGCAGTGG CCGTTGAGGT CAAAAGCAGG ATTCCCCAGA	8100
GGAGCTCTTT CTGTTCTTTT TCAACATCGA GTCCCAATAT CTGAGCCGTT TCTCTTTGCA	8160
GGTGCAAGAC ATCTAGAACG ACTGCTTTTC GAAAGAAAAA GATTGTCAAA GCGAGGATGA	8220
TCAGAGAACC GATGGCTAGG ATGGAAGTGT TGAGATGTTG AAAGGAGGCA AAAAGACTAT	8280
TTTGCAGTTT ATCGTATTCG TTTGGATCCA TTAGGACTTG AAGGAAGGTG CTGATATTTC	8340
GAAAGAGACT TCTGAGCGCT AGACAGATCA GCAGGACGAA GACCAGGTCT TGCTTCATCA	8400
GTGTCTTCAA GTAACCTTGT AAGGCGAGAA AGAAGAGGGA CTGGACAAGA AGTAAGACTA	8460
GGAATTCTAA GATAGGGGAT TTGCCAAGTT GAAGAAACTT GCTTTCAAAA ACCAGTAGTA	8520
GGGTTTGTAG TAGGACGTAG AAGGATTCAA TTCCCAAAAT ACTAGGCGTC AGGAAGCGAT	3580
TTTCCGTCAG GGTTTGAAAA CTAATGGTCG AAATCCCAGT CGCGATGGCT ACCAAGAGAT	8640
AAACGATGAT CTTTGGGAA CGCAACTTCC AAGCAAAGGC TGACAAGTGA GTGATGGGCC	8700
AAAAGTAGAG AAGACAAGCT CCGATGGCAA GAATAATGAG AATCCAGAAG AGCTTGGTAT	8760
GTTTGCTTTT AGTCTGCATC TTTTCGTCCC CCTCTCCAGA GAAGTAGGAT AAAGACGAGA	8820
CTACCGATGA TTCCTAGCAA GAGACTGACA GACAACTCAT AGGGCCTAAT CAGAACTCGG	8880
GATAGGATAT CGCAAGCCAG AACTAGATTG GCACCAACCA GTGCGACCAT GAGTTTGGTT	8940

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TGACTTAGAT TATCTCCATA GCGCTTGCGA ACAAGATTGG GAACGATAAC TCCGAGAAAT	9000
GGTAGGCCAC CCACGGTAAT CATGGTGACG CTTGTCGTTA GCGCCACCAG AAAGAGGGCC	9060
AGTTTTTCAA GTAGGGAGTA GGAAATCCCC AAACCTCTCGC TGGTTTCTTT CCCTAGATTC	9120
ATGATGGTGA AGGTTTGGA TAATTTCCAA ACGGTTATCA GGATGATGAG GCCTAAGAAG	9180
AGCCACTCAT ACTGATGGGT CTGAATCATG GAGAAGGAGC CCTGGGTCCA GGCAGTCATA	9240
CTCTGAACCA GATTGAAACG ATAGGCGATA ACTTCTGTGA CTGAGCCGAT AATCCCGCTA	9300
TAGATGATCC CAATCAGAGG CAACATCCAC CTTTCCTTTA CAGTAAAAAT GGTCATAAAG	9360
GCTAGGAAGA AGAGGGTGAA TACGATGGAT GAAACAAAAG CGAAGAGCAT CTTGTGGGTC	9420
AGACTAGCCG ATGGAAAGAC AAAAAGGCTC AGCACCATTG CCAGTTTGGC GGCTTCAGTC	9480
GTTCCAACTG TACTCGGTGC AGCAACTGA TTTTGGGTAA TAGTCTGCAT GAGAAGGCCT	9540
GCCATACTCA TACTAGAGGC AGTCAGGAGA ATACTGATAG TTCTTGGGAG ACGGGACTCT	9600
TGAAAGAGGA GCCAGGTCTG CTGGTCGAAA TCAAATAGCT TTCCCATGA AAAATCACTG	9660
GTCCCAATGC TAATAGAGAG AAAGACTAGG AGTAGAAGTA AGCCAGG	9707

(2) INFORMATION FOR SEQ ID NO: 165:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5910 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 165:

CCGCAATTAT GCTTGAAAAG GAGTATACTT ATAAGTAACG CAAACGTTTG CGTCTGAAAA	60
ATACGCAACG TTCCATTATT TTAACACACG AGGTGCTATT ATGAAAAAC GTCAAAGTGG	120
TGTGTTGATG CACATCTCTT CTCTTCCAGG AGCTTACGGA ATCGGATCAT TTGGTCAAAG	180
TGCTTACGAC TTCGTTGATT TCTTGGTCCG TACAAAACAA CGTTACTGGC AAATCCTTCC	240
ATTAGGAGCA ACTAGTTACG GGGATTCTCC TTACCAATCT TTCTCAGCCT TCGCAGGAAA	300
CACTCATTTT ATCGATTTAG ATATCTTGGT GGAGCAAGGT TTGTTGGAAG CAAGTGACCT	360
TGAAGGAGTT GACTTTGGTA GCGATGCGTC TGAAGTTGAC TATGCTAAAA TCTACTATGC	420
ACGTCGTCCT CTTTTAGAAA AAGCGGTGAA ACGTTTCTTT GAAGTCGGAG ATGTTAAAGA	480
TTTGTAGAAA TTTGCTCAAG ACAACCAATC ATGGCTTGAG CTCTTTGCTG AGTATATGGC	540
TATCAAAGAG TATTTTGACA ATCTTGCTTG GACTGAATGG CCAGATGCAG ATGCTCGTGC	600

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TCGTAAAGCT TCAGCACTTG AAAGCTATCG TGAGCAATTG GCAGACAAGT TGGTTTACCA	660
CCGTGTGACT CAATACTTCT TCTTCCAACA ATGGTTGAAA TTGAAAGCTT ACGCTAACGA	720
CAACCACATC GAAATCGTTG GGGACATGCC AATCTACGTA GCGGAAGATT CAAGTGATAT	780
GTGGGCAAAT CCACATCTCT TCAAAACAGA TGTCAATGGT AAGGCTACTT GTATCGCAGG	840
ATGCCCACCA GATGAGTTT CTGTAAGTGG TCAGCTTTGG GGTAATCCAA TCTATGACTG	900
GGAAGCAATG GACAAAGACG GCTACAAATG GTGGATTGAA CGCTTGCCTG AAAGCTTCAA	960
AATCTACGAT ATCGTTCGTA TCGACCACTT CCGTGGCTTC GAATCTTACT GGGAAATCCC	1020
TGCTGGTTCC GATACAGCAG CACCTGGTGA GTGGGTGAAA GGTCCAGGTT ACAAGCTTTT	1080
TGCAGCCGTT AAGGAAGAAC TTGGTGAGCT AAACATCATC GCAGAAGACC TTGGCTTCAT	1140
GACAGATGAA GTGATCGAAT TCGGTGAACG TACTGGCTTC CCAGGAATGA AGATTCTTCA	1200
ATTTGCCTTC AACCCAGAAG ACGAAAGCAT TGATAGCCCA CACTTGGCAC CTGCTAACTC	1260
AGTTATGTAC ACAGGAACAC ACGATAACAA TACGGTTCTT GGTTGGTACC GTAATGAGAT	1320
TGATGATGCG ACTCGTGAGT ACATGGCTCG TTACACGAAC CGTAAAGAAT ACGAAACAGT	1380
GGTACACGCT ATGCTTCGTA CAGTATTTTC ATCAGTTAGC TTTATGGCAA TTGCAACTAT	1440
GCAAGATTTA CTAGAATTGG ATGAGGCAGC TCGTATGAAC TTCCCATCTA CCCTTGGTGG	1500
AAACTGGTCT TGGCGTATGA CTGAAGATCA ATTGACACCA GCTGTCGAGG AAGGTTTGCT	1560
TGACTTGACA ACAATTTATC GCCGAATTAA TGAAAATTTG GTAGATTTAA AGAAATAAGA	1620
CAATAATCAG GAGACAACTA AACATGTTAT CACTACAAGA ATTTGTACAA AATCGTTACA	1680
ATAAAACCAT TGCAGAATGT AGCAATGAAG AGCTTTACCT TGCTCTTCTT AACTACAGCA	1740
AGCTTGCAAG CAGCCAAAAA CCAGTCAACA CTGGTAAGAA AAAAGTTTAC TACATCTCAG	1800
CTGAGTTCTT GATTGGTAAA CTCTTGTCAA ACAACTTGAT TAACCTTGGT CTTTACGACG	1860
ATGTTAAAAA AGAACTTGCA GCTGCAGGTA AAGACTTGAT CGAAGTTGAA GAAGTTGAAT	1920
TGGAACCATC TCTTGGTAAT GGTGGTTTGG GACGTTTGGC TGCCTGCTTT ATCGACTCAA	1980
TTGCTACTCT TGGTTTGAAT GGTGACGGTG TTGGTCTTAA CTACCACTTT GGTCTTTTCC	2040
AACAAGTTCT TAAAAACAAC CAACAAGAAA CAATTCCTAA TGCATGGTTG ACAGAGCAAA	2100
ACTGGTTGGT TCGCTCAAGC CGTAGCTACC AAGTACCATT TGCAGACTTT ACTTTGACAT	2160
CAACTCTTTA CGATATTGAT GTTACTGGTT ATGAAACAGC GACTAAAAAC CGCTTGCCTT	2220
TGTTTGACTT GGATTCAGTT GATTCTTCTA TTATTAAAGA TGGTATCAAC TTTGACAAGA	2280
CAGATATCGC TCGCAACTTA ACTCTCTTCC TTTACCCAGA TGATAGTGAC CGTCAAGGTG	2340
AATTGCTCCG TATCTTCCAA CAATACTTCA TGGTTTCAAA CGGTGCGCAA TTGATCATCG	2400



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ACGAAGCAAT CGAAAAAGGA AGCAACTTGC ATGACCTTGC TGACTACGCA GTTGTCCAAA	2460
TCAACGATAC TCACCCATCA ATGGTGATTC CTGAATTGAT TCGTCTTTTG ACTGCACGTG	2520
GTATCGATCT TGACGAAGCA ATCTCAATTG TTCGTAGCAT GACTGCCTAC ACTAACCACA	2580
CAATCCTTGC TGAAGCGCTT GAAAAATGGC CTCTTGAATT CTGCAAGAA GTGGTTCCTC	2640
ACTTGGTACC AATCATCGAA GAATTGGACC GTCGTGTGAA GGCAGAGTAC AAAGATCCAG	2700
CTGTTCAAAT CATCGATGAG AGCGGACGTG TTCACATGGC TCACATGGAT ATCCACTACC	2760
GATACAGTGT TAACGGGGTT GCAGCACTCC ATACTGAAAT CTTGAAAAAT TCTGAGTTGA	2820
AAGCCTTCTA CGACCTTTAC CCAGAAAAGT TCAACAACAA AACAAACGGT ATCACTTTCC	2880
GTCGTTGGCT TATGCATGCT AACCCAAGAT TGTCTCACTA CTGGATGAG ATTCTTGGAG	2940
ATGGTTGGCA CCATGAAGCA GATGAGCTTG AAAAAGTTT GTCTTATGAA GACAAAGCAG	3000
TTGTCAAAGA AAAATTGGAA AGCATCAAGG CTCACAACAA ACGTAAATTG GCTCGTCACT	3060
TGAAAGAACA CCAAGGTGTG GAAATCAATC CAAATTCTAT CTTTGATATC CAAATCAAAC	3120
GTCTTCACGA GTACAAACGC CAACAAATGA ACGCTTTGTA CGTGATCCAC AAATACCTTG	3180
ACATCAAAGC TGGTAACATC CCTGCTCGTC CAATCACAAT CTTCTTTGGT GGTAAAGCAG	3240
CTCCAGCCTA CACAATCGCT CAAGACATTA TCCATTTAAT CTTTGCATG TCAGAAGTTA	3300
TTGCTAACGA TCCAGCAGTA GCTCCACACT TGCAAGTAGT TATGGTTGAA AACTACAACG	3360
TTACTGCAGC AAGTTTCCTT ATCCCAGCAT GTGATATCTC AGAACAAATC TCACTTGCTT	3420
CTAAAGAAGC TTCAGGTAAT GGTAACATGA AATTCATGTT GAACGGAGCT TTGACACTTG	3480
GTAATATGGA CGGTGCTAAC GTGGAAATCG CTGAGTTGGT TGGAGAAGAA AACATCTACA	3540
TCTTCGGTGA AGATTCAGAA ACTGTTATCG ACCTTTACGC AAAAGCAGCT TACAAATCAA	3600
GCGAATTCTA CGCTCGTGAA GCTATCAAAC CATTGGTTGA CTTATCGTT AGTGATGCAG	3660
TTCTTGCAGC TGGAACAAA GAGCGCTTGG AACGTTTTTA CAATGAATTG ATCAACAAAG	3720
ACTGGTTCAT GACTCTTCTT GATTTGGAAG ACTACATCAA AGTCAAAGAG CAAATGCTTG	3780
CTGACTACGA AGACCGTGAC GCATGGTTGG ATAAAGTCAT CGTTAACATT TCTAAAGCAG	3840
GATTCTTCTC ATCTGACCGT ACAATCGCTC AGTATAACGA AGACATCTGG CACTTGAAGT	3900
AATACTCTTC GAAAATCTCT TCAAACCACG TCAGCTTTAT CTGCAACCTC AAAGCAGTGC	3960
TTTGAGCAAC TGCGGCTAGC TTCCTAGTTT GCTCTTTGAT TTTCAATTGAG TATAAGATAC	4020
AAATTTATAC TAATACATTT TGTAAAAAG CGAGTTTCGA TTGAAATTCG CTTTPTTAAT	4080
GATGTAGATT TGGGTCAATC TTGTCTAAAA ATAGGGAAT CCTAGATACA GTGAAGGCTT	4140

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TAAATGCTGG TTTTACTGT CCTCAGCCTT ATATTTTTC GTAGTTGGTT ACCTCATATC	4200
TATTATATTC GCTTACATAA AGTATTATAA TATAATTGTA GGAAAGAAGG TGTTTTTATG	4260
ATATACACAC TTAAATTGGT GTTGTATTAT ACCTTTCTTG TAATAAGCTT GTTACCTGAT	4320
AAGATTTTTG GAAAAATAA AAAAATTG GAAAATAGTT TTGCAATATT GACGGCAGTG	4380
GCAGCATTGT CATTTATGTA CTAAGTTATT TTAAGAATGT AGGGAAATAA ACCCTACATT	4440
CTTTTAGTT TTTCTGTTT TCTAAATTCT ATTTATCCAA GCGATTCAAC ATTTCTTGCT	4500
TCTTCGCTTC AAGTCTGCA CGCTTTCTT CGATTTCCGC ATGTTTTTTC TCGAGTTCAG	4560
AACAACCTGC ACCATTGCTA AATTCTTTTC GCCATCAGGA GATAGGGTGA GTCGACATGT	4620
CTATTACTCA CCCAAAGCAG TCCTACAAAG CAGGAATTTT CTGTTACTTT TTTGGAAATA	4680
GTAACGTTTA TACAGCTTG AACTTCTGTA TCAAAGCGCC AAACACACTC CGAGGGGTTT	4740
ACAGAAAGCA GAAAAGGAAT GATCTGGTAT AAGATCATTC CTTTTCyCTC TTTTCTTTA	4800
AGTAATTATA TACAATGTAC GACGAAGTCG TCATTGCAAT GCTGATCCAC CACCTAAAGG	4860
GAACTTTAAA CAACATTGAT AAGATAAAGA ATATAACAA CGAAAATACG TTATACCCAA	4920
TTAATTTTAT TGTATATCTC ATGATTAATA GTTAATCCTT CCGTTGTTAG GAATGGCATC	4980
ATTTTATCC CATAATTGTG CTAAATAAGT CCCCAGTGAT AATAAATCA TAGCGAATTC	5040
TAAAGCAACA TCATTTACAA ACCAACTACC TAGATATCTA GAAATTGCTG AACGAATAGC	5100
ACTTTTGTCT GCATGTTTC CTTTACTTT AATTAGATTT GCAAGGCCTG CAGTAGTTCC	5160
TCCTAATGCT AAAGCTATG CAGTATCTAA TAGAGCACCC ATTTGATTAA CTGTAATACC	5220
TTGCCAACT GCTCTAAATG GAGAGTATGT AGGTGGGATT GTATAATCGC CTTGTAATTG	5280
TCGGTTAATT ACTTCTTGA TCCATTGTTG TGAGACGTCT GGATGAAAAG ATTGGATTTT	5340
GTTTGCAAGT GTATTGATTT GTTCTTCTGT TAGAGAAGTG ACAGGTTGAA GTTCCATATT	5400
TGTTTCAATT TGTGATACTT GTTCAGAAGC GTATACAGCT GAAACACTTG GAATCGCTGA	5460
TACAATTAAC ACAATTGACG TCAAAAAAC CGAAATAAAT TTCATTAATT TGTTTCATGAG	5520
CTTTTCTCCT TTTTATTGTC ATCTGCTTAC ATTTTATCAT ATACTGTTAT TATAGTCAAA	5580
AAAATATGCT ATTATGTTAA AAAAATATTT TTCAAATAT AAATGGACGG ATTTATTTTG	5640
GATTTTATTT GTTATTTTGA CCTGCCTCTA TATTGGTAAC CATGATTGT TTAATCTCAA	5700
TCATCAAGAA TTCTCTTTTC GTGGTAGCGT TTGGGGTCTG GTACTGGCCT TATATCACTT	5760
ACTATTCATT GATAAGTTTG TTATATCGAA TCGAAAATAA AGATTAGAGC TATGCTTGAC	5820
TGTGTACTTT TAGGATTTAT TTTGGAGGAA GATTTGTCT CTATTATTTA TTATTTTAAA	5880
TTTATTTATT TTGTATAAGA TCTATTCTTT	5910

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## (2) INFORMATION FOR SEQ ID NO: 166:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5406 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 166:

GGCATAGCGA CTCATTTTTT CAACTGTCCA GGCTGGATAC CAGACTAATT TAACCTCAGT	60
ATCCGTTACT TCTGGAACCT CTATCATAGC ATCATAAATC TGGTCTGTCA AAAGGTCTGC	120
TAAGGGACAA CCCATAGTTG TCAAAGTCAT GTCAATCTCT GTTTGCCCTG TGTACCCTG	180
AAAACGAATC TCATAGATCA AACCAAGATT GACAAATATCG ATTCCCAACT CAGGGTCGAT	240
GACTTCTTCC AAGGCTGTTA AAATCCGTGT TTTGATGTTT TCAATTTGCT CTTCTGTATA	300
AGCCATATTT TCCTCACTCT TAGTCTTCAA TAAAATCAGG AAGCGGTTTG CTACGACTTG	360
GTTGGCGTAG TTTTCTCAAA GCCTTTGCTT CAATCTGACG GATACGCTCA CGAGTTACGT	420
TAAAGACTTT CCCCACATCT TCAAGTGTGC GCATTTTTC ATCATCTAGT CCAAAACGTA	480
GACGCAGAAC ATTTTCTTCA CGGTCTGTAA GAGTATCTAA GATTTTCATCC AATTGCTCAC	540
GCAAGACGAT ACGAGTCGTA TAATCCACTG GATTTTCAAT CACTTCATCT TCGATAAAGT	600
CTCCAAGGTG GCTATCGTCC TCTTCACCGA TAGGAGTTTC AAGAGATACT GGTCTTGGG	660
CAATCTTCAA GATTTTCACGA ACCTTATCAG GTGTCATATC CATTTCGTTCA GCAATCTGTT	720
CTGGTGTCCG ATCTTGCCCC AATTCTTGAA GGAGATTCCG CTGTTTCACGA ACCAATTTAT	780
TGATAGTTTC AACCATGTGA ACTGGGATAC GGATGGTACG AGCTTGGTCC GCAATAGCAC	840
GAGTGATAGC CTGACGAATC CACCAAGTTG CATAAGTTGA AACTTGAAC CCTTTAGAAT	900
AGTCAAACCT GTCAACCGCC TTCATCAAGC CCATATTTCC TTCTTGAATC AAGTCAAGGA	960
ACTGCATACC ACGACCGACA TAGCGTTTGG CAATGGAAAC AACCAAACGA AGATTGGCTT	1020
CCGCAAGACG TTGTTTGGCT TCGATATCAC CAGCTTCAAC AGCCAGTGCC AACTCTTTCT	1080
CCTCTTCATT GGTCAAGAGA GGAACGACCC CTATTTCTTT CAAGTACATA CGGACAGGGT	1140
CATTGACCTT AGCAGAAGTT GACCCAATCA AGTCCTCATC GCTGAGTTCT GGTCTTCTT	1200
CATTGCTGAG AACACGCGCA CTTGGATTTC CTTTCGTTATC TGTGATAGAA ATGCCTGCAT	1260
CCTGAATCCG TTGCAAGAGA TCTTCAATCC CATCAGCGTC CAAGGTAAAA GGAATAACCA	1320
GACTTGCATT GATTTTCATCA TCTGTTGCTG TCCCTTTTGT CTTATGATTA CGGATAAATT	1380

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CTGCTACCTG TACGTCAAAT GTTGTTACTT CTTTTTGTTC TGTGCCCATT ATTACTCCAT	1440
TCTTCTCTTT TGGGAAATTA AACGTTCCAA TTCTTCTAGG GCTGTATCTG TATCTCCTAC	1500
ATGGCTAGCT TCCTGCACCT TCTTTTTGAT TCTCATATTG TCCTGATTCA AGAGAGCCTT	1560
GTTTCGAGTC ATCTCTACTT CACTAAGTTC CTGCGGCGAT ATCTCAGCAG GCAAATCCTG	1620
AGCTAAAACT TGGTACCAAG CTCTTTCAAC TTCCTCTGTC TGCTCTGCTA AAACCTCTGG	1680
AGGAAGATTT CCATACTGGC CAAGCAAGTC ATATAAGACC TGAAATTCAG GTGTAGCAAA	1740
TGCAAAGTCT TCTCGCAAAC GGTAAATCGTT CAAAACAAGA GGGGATTCCA TCATCCGATA	1800
GAGTAGATGG GCTTCTGCCC TCATAATAGC CGATAACTGC TTGGTGACAG GCATGGTGAT	1860
TGGCGTCGGT CTGGAAATTC CTTCCATGCG ATTCTGCCTT TGCACCTGAC GACTCTCATT	1920
AACAATCTGC TCAATCTGGG TATAATCAAA GGACGCCAGA CTGTCAGCTA AAATATGAAT	1980
ATAGCTGTTT TGAGCAGCGA TGGACTTTTC TTGAACAATC AAGGGAGCTA TTTTTTCAAG	2040
AAACTCAATC TGAGCCTGCA GATTTTCACT GTTTTCAGGT TTGTACTGAT GAATGTAGAA	2100
CTCAATCGGA CTAATACGAG TTTTCGTTAA TAGATAGGCC AAGTCTTCTG GACCATTTTT	2160
TTGTAGATAC TCATCAGGAT CCAAGTTATC AGGCATGCTG ACGATTTGCA CAGGCATATC	2220
ACCAATTTCA TCCAATGCTT TCAATGTCGC GGCTTGCCCA GCCTTATCTC CATCGTAAAC	2280
AAGAACCAAT TTCTTGGTTA ACCTTTTCAG ATGCTCAACA TGCTCTCGAC TCAAGGCTGT	2340
TCCCATCGAC GCCACAGCAT TTTGATTCC AGCCCGATAG GCTGCAATAA CATCCATGAA	2400
TCCTTCCATC AGGTAAATCT CACTAGCTTT TCCAGAAGAT CTTTTTGCCC TATCCATATG	2460
ATATAATTCG TAACTTTTGT TAAAAATTGC AGTCGATCGG CTGTTTTTAT ACTTAGAAGT	2520
TTGTGAATCC GTTTTTTGCC AGATACGACC TGAGAAGGCA ATGACCTTTC CTTGGTCATT	2580
TGTCAGGGGA AACATAATGC GATTGTGAAA GGTGTCTACA AATTGATTGG CATCCGAGAG	2640
ATAAACAGG CCTGAATCCA GTAAATCCTC TTCACGATAC TGATCAGACA AACGTTGATA	2700
GAGATAGTTT CGTTCTGGAG GTGCTAAACC AATCCAAAAA TGTTTAAGCA CTTTCTCTGT	2760
CAACCCCCGC TGATAAAGGT AATTTCTGGC CTCTTCGCCC ATAGTCGTTG TCATGAGAAT	2820
AGCATGGTAA AATTTGGCTG CATCTTCGTG CATATCATAA AGAGCTTGGT GAGGTGAGGC	2880
TGACTTCTGC TCACTATAAA GCGGTTTTTC AACCTCAATT CCAACACGCT GACCTAAGAT	2940
TTGGACTGCT TCTATAAAGG GAACCCCTTG GTACTCCTCG ATGAACTTAA AGACATCACC	3000
TGAGCGACCA CAACCGAAAC AGTGATAAAA CTGCTTGTCC TCTACAACAT TGAAAGATGG	3060
TGTTTTTTCA CCATGAAAAG GACAGAGCCC TAGATAGTTC CGTCTGCCT TTTGTAAAGA	3120
AATCACATCT CCTATGACTT CCACAATGTT GGCATTGTTT TTGATTCTT CAATGACTTG	3180

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TTTGTCAACC ATACACAATA CCTCCATGTT ATCATAGTTT ACTTTATATA GTATACTTTA	3240
TTTCAGAAAA AAAGTAAACC ATTTCACTCA TTTTCCCTAC TTTATTCAAA GAGTTGATAA	3300
TAATCAGAGA TTTTCATTTT TGCTTTTCT TCTTGGTTTA AATCTTGGAT AATTCGTCCT	3360
TCTTTCATGA CAATCAAGCG ATTGCCGTAT TTGAGAGCAT CTTCCATATG ATGAGTAATC	3420
ATAAGGGCTG TTAGCTGATC TTTCTTAACA AATTCATCTG TCAATTCCAT CAAAGCAACA	3480
CTAGTCTTTG GATCCAGGGC AGCAGTATGC TCATCTAACA GGAGTAATTC AGGTCGCTTC	3540
AAGGTTGCCA TCAAGAGACT CAAAGCCTGT CTTTGTCAC CTGATAAGAA CTCAATCGGT	3600
GTATTCAGT GTTCTCAAG ACCATTTCCT ACTTTTCAA TGGTTGCCTG AAATTCATCC	3660
TTATAGCTAG TCAAGCGTCG TGGTAACAAT CCACGCTTTT CACCACGAAA CTTGGCGATT	3720
AAAAGATTTT CAGCGACCGT CATACTGGGA GCTGTCCCA TCTTTGGATC TTGGAAGACA	3780
CGAGACAGGT ACTTGGCAGC CTTCTCGGGT GAAAACTTAG TGAGATCTTC ACCTAAAATA	3840
CGGATAGTTC CACTAGTTAG TGATAAGGTC CCTGCTATAG TGTAAAGAG AGTTGATTTT	3900
CCAGCACCAT TTCCGCCAA AATCGTGATA AAGTCCCGTT CAAAAATTC TAAGGAAACA	3960
TCATTTAAAA TAATCTTTT TCTATCAAAG CCATTTTAA CGATTTTGGT TGCATTTTTT	4020
AATTCTACAA TTGCTGTCAT TTGCTTAACT TGGCTCCTTT CAAGATTGTT TGCTTAAATG	4080
TTGGAATCAT GAGGCAGACT GCTAAATCA AGGCACTGTA TAAACGAAG TAACTTGTAT	4140
TAAAGCCAAG TGCATAACT GCCCACACTA AAAATTGATA AGCGATAGAA CCTACAACGA	4200
TAGTAACCAA ACGCTCTGCC AAGCTCAAAC TCTTGAAAT AACTTCTCCA ATAATCAAAC	4260
TTGCAAGCCC CACAACGATA ACCCCGATCC CTCGAGACAC ATCGGCATAA CCTTCTTGCT	4320
GAGCAATGAG GGCACCTGCA AGGGCAATCA CACCATTGTA TAAGACCAAG CCCATGAGCT	4380
CCATGCGTCC AGTATGAATC CCGAACTTC TAGCCATATC AGGATTATCC CCTGTAGCAA	4440
TATAGGCTTG TCCGAGTTTA GTGTCCAAGA AAAAGAGCAT GAGAGCAATA ACAATACTCA	4500
CAAAGATGAG ACCTGTCAAG AGTTGATTCA AATCCGAATC AAAAGGCAAA ACATCCTGAA	4560
TTTGCTTGGT TCCAAGCAGG CCTAAATTCG CACGTCCCAT AATCAAGAGC ATGATTGAGT	4620
GACAAGAAGT CATCACAAA ATCCCTGAGA GCAAGGTTGG GATCTTCCCT TTTGTATAAA	4680
GAAGGCCTGC TGCCATTCCA GCCAAACAAC CTGCTCCTAC AGCAACAAGT GTCGCTAAAA	4740
ATGGGTTTAC GCCTTTGGTT ATCAAAGTGA CAGCAACAGC TCCCCAAGA GGAAGGAAC	4800
CTTCTGTCGT CATATCTGGA AAGTTTAAAA TCCTAAATGT CATAAAGATT CCCAGACCTA	4860
GAATAGCCCA GACAAATCCT TGAGAAATAA TGGAAACAAT CATATTTTAT TTAATCCTTT	4920

1070

CTATATTCAT CTTTTTAAAA AATGGGAAGA GTCTCCTCCT CCCTACCTTA TTTATTCGAT	4980
GACTTGTCCT GCTTCTTTGA GAACAGACTC AGGAATAGTA ATACCTAGTT CTTGTGCTAT	5040
TTTTTTATTG ATGACTGACT TACCAGTTGA AAAGACATTG ACTGGGGTAT CGGCTGGTTT	5100
TGCACCTTTC AAGACTTGCA CAATCATTTT ACCTGTTGCC ACACCAAGGT CATGTTGGTC	5160
AATTACAAC TATGCCAAAC CACCTACTTC TACCATAGCT GTCGCACTGG GATAAATTGG	5220
TTTCTTAGAA CTTTGATTGC TAGAGACAAC CGTTGGAAAT CCTGATGCAA TGGTGTATC	5280
AATTGGAACC CAAATAGCAT CTACCTTGCT AGTCATAACA GTGACAGTTG AGGCAATTTT	5340
ATTGTTGAA GGAAGTCAA ATGTTCCAC TGTCAGACCT GCCTTTTCAG CATAAGCCTT	5400
AAATTC	5406

(2) INFORMATION FOR SEQ ID NO: 167:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 9711 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 167:

CAGCTTGCTC TTAATAATAT AGCAGATGTT ATAGCTGGAA TTATCTTGTA TTTCGTCTGC	60
AAATGGCTAG ATGGTAAGAA GTAGACCGAA TGACTAGCCT ATAAACACCC GTTAAATCGC	120
TAAGATACGT CAAAAAGCC CTTAACTATG GCACTAGTTA GGGGCTTTGG TGTCTAATG	180
AACCTTATAC ACTAACTACA TTCTAGCATA TAAGCCCAGA TATTCAAGA GTTTATTTA	240
TTGTTTAAAG TTCTGAAAGG TCTATAATGA AGTTAGCCAT CTAGTATCAA AAAACCGACT	300
AGCTCTTATG AACTAGTCGA TTTCTCATCA ATGCGCCAAC ATTTCTTGGG CGATTCTCTG	360
GCCAGATAGG TTATCTGGGT AGTAGGTTGG CCAGTTGTCC ATTTCTTCAA AGAGGGCTTC	420
TTGGCTTG TG CCTCAAAGA AGATATGGAA ATGTTCTGCC TTAAGTGGG CAACATTG	480
GTCCTAAAC TGAACATACT TGAATTGTCC AGCGTCAGCA TCTGTGGCTT CAAAGAGGAA	540
ACGCACGCCA CGATTGCCTT TCTTGTAAGT CAAAATTTTC TTACCGACAT ACTGTAAGT	600
GTATTTCTTG CTTTGTCCAC CTTGAACAAA TTCCATAGTA TTATCAGTAA TGTTAATCTT	660
AGTCACATCT GTATGATAGC CTTTGTATA GTAAGCCTTG TACTCAGCCT GGGTCATCTT	720
ACCAGTCAAC TTAGCCTTGT AGTCAAAGAC TTGGTCAAAC GTGCCGTCTT CAAGGAAAGG	780
ATAAACTGAT TGCCAGTTAC CTGCATAGTC ACTCAAGGTG CGGTCCTTGA CAGCTGCATC	840
CTCGAAGTAA CCATTTTGA CTTGCTTGGT ATCCTCTGCC TTTTCAGGTT CAATTGCTGG	900

1071

GCCTTCTTGG TCTGTTGTTT GTTTCAAAGC CTTGAGGTTT TTCTCCATCA CGGAAATGTA	960
GTTTTCTCCA GCCTTGGTGT CCTCTTCTGT CAGACTTTCT AAAGGATTGA GGACATCAGT	1020
TTTGACACCT GCTTCTTTTG AAAGTGTTT AGCAAGGGCT TGTGAGGCAT TTCTTCAAAA	1080
TAGATATAGG CGATTTTATT TTTCTTGACA TACTCTGTCA ATTCTGCCAA GCGAGCAGCT	1140
GATGGCTCTG CATCTGGAGA AAGTCCTGAG ATTGCGACTT GTTTGAGTCC ATAGTCCAAG	1200
GCAAGATAGT TAAAGGCTGC GTGTTGAGTC ACAAAGCTCT TTTGTTTTGC TTGAGACAAA	1260
CCTTCTGCGT AAGCCTTATC CAAGGCTTGC AATTTTTCGA TATAGGCAGC TGCATTCTTC	1320
TCAAAGGTCT CTTTTTATC AGGATAATCT GCTGACAAGC TGTGCGGAT GTGCTCTACT	1380
AGTTTAATGG CACGAACTGG TGATAACCA ACATGGGGT CAACTCATG GTGATGACCT	1440
TCTTCTCCAT GGTCAATGGT TCCCTCTTCT TCCTCGCCAC CTGGCAAGAG CAACATATCG	1500
CCTGTCGCCT TGATGGTTTT CACTTTTTTC TTATCCAAGG TATCTAGCAA TTTAGGTACC	1560
CATGTTTCCA TGTTTTCATT TTCATAAAGC AAGGTATCTG CATCTTGGAT TTTGGCAACT	1620
GCCTTGGCAG ATGGTTCGTA TTCATGAGGT TCTGTCCCAG CACCGATTAG GAGTTCTACA	1680
TTAGCCGTAT CTCCTGCGAC TTGCTTGGTA AATTCATAGA CAGGGTAAAA GGTGTGCACG	1740
ATATTGAGTT TACCATCTGC CTGTTTTTGA TTGGAACAAG CCACTAAAA CAAGGCACAT	1800
AGACTGGCTA GTAATAAGCT AATTTTTTTC ACGTTCGTCT CCTATTTGAT AAAACGTCTT	1860
ACTAACTGA TTAGTATAAA GACAGTTACA AAAATAATGG TAATACTTGC ACTTGCAGGT	1920
GTTTCTGCAT AGTAGGAAAT GTAAAGTCCT GCTACCATTC CCAAAAAGCC AATCGCACTG	1980
GCAAGCAGCA TAACCGATT AAAGTTTTTC CCCAGACGCA GGGCAATACT AGCTGGCAAG	2040
ACCATAATGG TCGATACCAG AAGAGCTCCT GCTGCAGGAA TCATAAGGGC AATAGCCACC	2100
CCTGTCACCA TGTTAAAAAG AATGGACATG GTACGAACTG GCAAGCCATC CACAAAGGCC	2160
GTATCTTCGT CAAAAGTTAA GATATACATA GGACGAAGAA AGAGAAAGGT CAAAATCAAA	2220
ACAACCGCCG CAATGACAAA GAGGGAAATG ACCTGTTCTT CACTGATAGT CACGATCGAA	2280
CCAAAGAGAT ATTGGTCCAA ACTCATTGAA CTCGAGCTTT TACCCTTGCT CATGACAATC	2340
AGAGAAACAG CCAGACCTGT TGACATGAGG ATAGCTGTCC CGATTTCCAT AAAGCTCTTG	2400
TAAACCGTAC GGAGATACTC CAGAAAGACC GCCGCAATCA AGACAATGGC AATAGTAGAA	2460
ACAGTTGGAG AAATCCCCAA AACCAGACCA AAGGCTACAC CTGAAAGTGA GACGTGGCTA	2520
AGGTATCAC TCATCAAAT CTGACGACGC AAGATGAGGA AGGTTCCCAA TACCGGTGAG	2580
AAAAGACTCA TAGCAATAAC GCCCAAAAAG GCGCGTTGTA TAAAGTCGTA AGATAATAAA	2640

1072

CTAAGCATGG CCCACCTCCT GGCCATTCTC ATGAACATTG AAACAACGCC ATGGCGAGTC	2700
TTGGTTACGG ACTAGATGAA TATTGCGATC CGCATAATCC TTAACCTCTT CAGGGTCATG	2760
GGTAATCATC AAAACAGCCT TGCCATGATG ATGGGCGCTG TGGTGATGA GTTCGTAAAA	2820
TTCATTTTTA CTTCTGCGAT CCATCCCCGT TGTGGGCTCG TCTAGGATAA ACACATCAGG	2880
GTCAGAAGCA AACATACGCG CAATTACCGC TCGCTGCTTT TGTCCCCCAG ATAGAGACCC	2940
CAAGCGTTTG TCTCGATGTT CCCACATGCC AACTGAGTCC AGACTAGCCT TGATATGCTC	3000
CTCATCATGA GCATTCAAAC GACGGAACCA GCCTTTTCTC GGATAGCGAC CCGACTTGAC	3060
AAATTCATAG ACCGTAATTG GAAAACCAGC ATTAATACTG GCAATTTGTT GAGGAAGATA	3120
GGCTATTCTC AATTCTTAC CTTGCGTATT TGTCTTTGAA ATAGCCACCT TTCCAATGCG	3180
TGGTTGCAGA ATTCCAAGAC TAGCCTTGAT GAGCGTCGTC TTAGCCGCTC CATTTTCCCC	3240
AGTCAAGGTA ACAAATTCCC CACTATCAAC ACAATAATTG ATATGTTCAA GAACAGGCTC	3300
CTTATCATAA TAGAAGGACA AATCCTCTAC CGTAATATAT CTCATTATTT GATTTCCTCT	3360
ACTAAAGCAG TCAAAAACCG CTGAATCACT TTTTGTTTCAT TTGGAGTAAA CTGAGTCGCC	3420
ACTTGTTTCAT AGGTTAAAAG TGTATGCTCA TGGTGATGGT GGTGCTCCTC AGCGATTGGA	3480
CGAGCCAAGT CAGTCAACTG ATAAAAATC ACACGCGCAT CTTTAGAATC TTTAGATGTT	3540
TTCAACATCC CTTCTTGAC CAAAGACTTA ATGGCCTTGG TAACTGCCGC CTGACTGACA	3600
TTGAGACGAC GGGCCAATTC TGAATTTGTT AAAGATTCCT CTGACAAGAG CATAAGGATA	3660
TGCTCCTGAG TATTGGTCAG GGCCACCTCG CTAGTGCAAT GACCTATTAG GATTTCATGC	3720
TGATTTTCCG CCGCAAAAT CACCTCATTC AAAAAAGCAT TGATATCCTT TGCTAGCTGT	3780
CTCATATCTG ACTCCTTTCC TTTTAGACTT CTCTTTTTTA AGAGAAAAAT ACTATTCTTT	3840
GACATTTTGT TTACCAGTTA ATTATATCAC AAGCAAAAAA AGAGTCAAGA AAAACGTGA	3900
AAACTAGTTT CATTCTTGAA CTCTTCTATA TTATATTATC TATTGAAATT CTTTGACATC	3960
TCCATCATAA GTCGCCAAT CTTTGCTGAA AAAGCGCTCA TTCAGATGGT AAGTCGGAGC	4020
TGGTGTGGGA TTGGATAGGA AAGGATCAAC TGCCTTGTC AAGGCCAACC AACCCAACCA	4080
ACCAAGGTGA ATGGTGTCTC TCATAAAGAA AGGCTCCCCG CCGTCCTTAG AAAAATCTGC	4140
TATATTGGTA AAACCTTGAC TTTCTAACTG GTAGCGAATC TTCTGCACCG TTTGTTGGTA	4200
CATATCCTCT CGTAGACCAG CATAGTTCAT CCATTTTTTA TTAACAGGTG GAATGATAAA	4260
AATCGGGTTT ACCTTAGATT TAGAAAACCTG TGTTAAAACC AACTGCAAGT CATTATACTC	4320
TGGCGACTTG AGATAGGTAA AGCTTTTCTG AGAATCCTTT AATTTCTTCA AATCCTTCTT	4380
GATCTGCTCA TTATAGAAAT AATTTTCCAT TCCCATCTCA TTATTGGAAG TATTTTTTTC	4440



1073

AGCATCTGCT TTGACAACAT CTTCTATTGC CTGATAAGAA AACTGGTCTG GCAAGATTTT	4500
TAAATACTTA GCTACATGCT TATCGTAGTT AACATAGCCT CTAACCGAAA ACTGACCAAA	4560
AAAGGAAGCT TGGCGTTCAT TAAAACGAGC CAATAATTCA ATCATTTCAT TGTCTGCTGT	4620
CGACAATTCT TCTTTACTTG CCAACTTCTG AACCAGGTCC TTCATAGCTA CGTTTGGGAA	4680
CTGTTGCAGT AAGCGAGTCG CTGCATATTG ACTAGCCTGA TCCCCAGATT GATGTTTCAG	4740
AAAAC TAGTC AACTGGTCTC CATTAAAATA CTGCTGGAAG GCTGCTGGAT CATAGCCATT	4800
TTTACTGAAC CACTGAGGTG AGATAACATA CACAATTGT TTATTCTCCA GCTGTGGTAA	4860
CATCTGTTGC ATTCCAAAAT ATTGGTTAAG CGATGCAGCT CCCCCCTGTC CTAAAAGATA	4920
AGGACGGTAG GAACGATTGT ATTTCTCAGC TAATACCGCA GGATGAGCAC CGTCAAAACG	4980
AAGCCATTCA CTAGAGCCAA AGAAGGGAAC AAAACGCACA TTTGGATCAG ATAGTGCTCT	5040
GACTTTTGA CTTGCTCCT TAAAAC TATC GATAGTAGTA GCCACTGCTG AACGCTTTTC	5100
AGCTCCTAGA TTATGATGCA TCTCAGTAGG ATAAAAGAAA ATGAGCAGAA AAACCAACAA	5160
ACCAGCGATC AAGACCGGTC CGAAGATCAT CCATAAGCGT TTAAGCATTT TGTAGCTCCA	5220
CAATACCAGC TATGATTTTA TTAGCTGTAT TCCAGTCGTC ACGACCAAAC TCTGTTACAG	5280
GGACACGAAT GTCAAAACGG TTCTCAATCT CCACAATCAA CTCAACCGTT CCCATACTAT	5340
CCAAGACACC TGCATCAAAA AGATCTTCAT CCATCATGTC AGAAACATCT TCCATAAACA	5400
ACTCATCAAT AATTTCAATA ACTTCTGATT TGATATCCAT ATTTTATTTT CTTTATTTT	5460
TTAAACCATA GATTATTCAA GAATCCAGAA AAGATTAAGA ATGACAACAT GACAACATGG	5520
AAAGTGACAA CCATGCCAAG CAACTGAATC CAGCGATTCT CAGGTAGGGC AGCCTTCCCT	5580
GCTTTTTTCC GTTCCTTATT GAGCGTTTTT TTCTTGCGAA CCCAGGCATC ATTGATGACC	5640
AAGCCTAGTC CATGAAAGAG TCCATAGGCG ATATAGTACC AGGTCACACC ATGCCAAAAT	5700
CCCATAATCA GCATATTTAC AATGTAGGCC ATGCTTGAGG TTACATTACG ATTTTTAAAG	5760
ACTTCTTTT TGGTTAACAC CATCACCATT CGCATAAAGA CAAAGTCACG GAACCAGAAG	5820
GACAGACTCA TATGCCAGCG ATTCCAAAAC TCCTTTAAAT CCCTTGATAA AAAGGGCTTG	5880
TTAAAGTTGA TAGGGCTACG GATTCCCATC AAGTTTGAGA TGGCCAAAGC AAACATAGAA	5940
TAACCTGCAA AGTCAAAGAA GAGTTCCAGA CCAAAAGTAT ACATAACTGC CAAGGCATAG	6000
AGATTAAAGA AGCCACCTGA CTGCAAGGCT AAATTCTTCA GAGGAGGTAG TAAGGTCTCT	6060
CCTAAAACAT GAGCTAGGAT AAATTATAC AAAAAGCCCC ACATGATATA GCGGACAGAT	6120
TCATCCAGCA TATCCATCAA CTCATCTCGC TCAGGAATAG CCTGATAATT TTCATTAAAT	6180

1074

CGCTTAAAGC GATCGATTGG ACCACTCGAG AAAGTTGGCA TGAAGAGAAG GAAACGGAGG	6240
AATTCCCAGA GGGTAAAATC CTTAATCACT CCATCTCTCA GCTCGATGAC AATTCCAACC	6300
GAACGAAAGG TCAGGTAAGA AATTCCCAAG AACCCAAGCA AAGACTGCGT TCCATTGATA	6360
GCTGGTTGCA CCTTGACAAA GATAATCGGA AGTAGGGACA GAAAACTAAC TAAGTAGAAG	6420
ACCCACTTGC CATCCTTGCT TTTTCGATAA TGCTTGTAGA AAAGCAGGAG CAATATTTCC	6480
CAGCAAAGGT AAATACCCAA GGCAGCTAGT TGATTGGTCT TTCCACCCAC CAACATGGTG	6540
ACAATAAGA AGAGACTTAC CAACACTTCA TACCAGGCAA AGCGTTTCTT GAAAAAGAGA	6600
CCTATAAGA TGGGCAAGGT TGCAGCAATC ACATAACAA AATACTGAGG ATTGCCATAT	6660
GGCTCTAAAT GAGGAAGCTG TTGAAAAAC TCCATCATCT CTTATTCACC TCGTTAATCA	6720
ATCCTTTGAT GTCAATCTTT CCATTTGGAG TTAGTGGCAA ACTGTCTCGG TAAAGGAATT	6780
TAGATGGCAT CATATAGGAC ATCATGATGT CTGTCAGGTC TTCCTTGATG GCCTTGGTAA	6840
TATCGATATC TCGCTCAAAC TGCTCACGAA CACCGTCTTT TAAGATGACA TAAGCCAATA	6900
GATTTTGTAC CTTGTGGTCC TTGTTATAGC GCGGTACTGC GACAGCAGAT TCGATAAAGC	6960
GAGACTTGTT GAGGTTTTGA GAGACATCTT CTAACTCAAT GCGGTAACCG TTAAACTTAA	7020
TCTGGAAGTC CATGCGTCCG CCGTAGAGAA GCAAGCCCTC ATCTGTCATG GTTCCCACAT	7080
CGCCTGTGTG ATAGGCTGGC AGATCTTCAA ACTCAAAGAA GGCTTCTGCT GTTTTTTCAG	7140
GATTGTTTAT ATAACCTTTT GAAACAGCTG GCCCAGAAAC AATGATTTCT CCCTGCTCAC	7200
CATTTGGCAG TTTATTTCTT TCCTCGTCAA TGATAAAGGT TGGAGAATCA GCCTTGGTAT	7260
AGCCGATTGG TAGGCGTTTG AGAGTCGCTA ACATCTCGTC TGTCACGGCA ACTGCTGACA	7320
GAGCTACTGT CGCTTCTGTT GGGCCGTAAG CATTGATGAT ACGGGCATT TGGGAAACGCT	7380
CGCGCAGTTT TTGAGCTGTT TTGACCGTCA ATTCTTCACC ATCAAAGTAG AAATGCGTGA	7440
TTCCAGGCAT TTTCTCACTG TTGAAGTATT CAGACAACAT GGCCATATCT GCAAAGGATG	7500
GTGTTGATGT CCAGATAGCG ATTGGCAATG AAAAGATAGC CGCAAAGAGT TGCTTAAAT	7560
CCTGAGTGAT GACTGAAGGA AGAGTGAAAA GCGTACCACC AAGTGCCAAG GTCGGTGCCC	7620
AATACATGAC AGACAAGTCA AAAGAATAAG GTGGCTGTGC CAGCATTTGC GGACGACTCG	7680
GTGTCGCAAA TTCCTTATCC GTAATCATCC AGTTTGTAAA GCTGAGGAGA TTATCATGTG	7740
AAATCTGCAC TCCCTTAGGC TTACCAGTCG TACCAGAAGT AAAGATAATG TAGTAATTAT	7800
CATCTCCCTT GACTGGATGC GTGATTTTAT AGTTATTTCC TTGGGCAAAG GCTTCTTGAA	7860
CCTGAGCTAG ATTTATCATT GGTGTAGAAA CCTGCTCCAA GGGAAAGGCT GAAATGGCAA	7920
TAATCAAGCT TGGCTCTGCT ACTTCTAAAA TAGCTGAAAC TCGCTCCAAG GCCGAATGGC	7980

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TATCAATTGG AATGTAGGCA TGACCTGACT TAGTCAGCGC TACAAAGGTT GCCAACATTT	8040
CATATTCTTG GCCACCAAAA ACAACCACAG GAGACTTCTC AGGCAAGCCT AGTTGGTCAA	8100
TGACTGCAGC CAACTATCC GAATCAGCCT TTAAATCGCC ATAAGTGTGT TCCTGCCCCA	8160
AAACATTATA GACAGGATAG CTAGGCTGTG TCTGAGCAAA ATGCTCAATG GTTTCATCA	8220
TATCTGCTAT TGGTTTATTT GACACAATAG GGATTCTCCT TCAAGTTAAA ATTCATTATA	8280
GATAAAGCTT CCTTGACCCT GACCAAGATA GCTAAAGAAG TAAAGCAGCC CTAGAAAGAT	8340
AAGAAAATAC AAGGCTGTCC GACCAAGAAA GAGGTACAAT TCTTTTCTCT GTTTCATCAA	8400
GAAAAACCAT TCATTTCTGT AATTTTTCGC TAAATAAGA GTGATTCTTA CTAGCTTATT	8460
TTTCTACCAT TGTACCACTT TATATAGTAT CTTTTCATTT GTTTACCGTA TGTTCCTAAT	8520
AGATTTTCAGC TTATTTTAAG GATTATACAG TTTTCTATG TATATTTTCA AATAGAGTGA	8580
TCCTGCTTCA AAACCTCCATT TCAGGAGACA ATGAAGTAAA TCTTCCCATA ATAAACACA	8640
CAATATCAAG TTTTTTCAAC ACCTGATACT ATGCGCTTTT CTGATTTTTA AAGACTTTTT	8700
AACCACTCTC TCATTTAAAA TAATCTCGTC TGATATAAAT TAAATAGCT TCTATCATCA	8760
GACAAATGGC TGATAGCCAA AAACGTATGC TAATACCAA ACTCTCAGTA ATATAGCTCA	8820
TTAGCAAAAC AAATACTGAA AATGCTAATG TAGAAATCAC TTCAAGAACG GAATAGACAT	8880
TAACTAAATG ATTTTCTCT ACTGTTTCCT GAAGAAATAC ACTTTCAGGA ACTTCTTTTA	8940
GTTGCGATAA CATACCAACT AAAGCTGAAA ATAATAAAAA CATCTGTGCG TTTGGAAAAAT	9000
ATAGAATAGT CAGTGTCACT ATTTCCATAG CTACAAGAGG AAAAGAATA CTTTCCCCC	9060
AAATCATPCA TACCTCTCTC AACTAGATGT AACTTACAAA ACCCCTGACC TCATGAGCCA	9120
CTTCTTCTCT CCTCATGAGG TCAGTTTAC TTTCTGCTGT TCCAGTATGG TTTTCTCTCG	9180
CTAGATTTCC TCAAAAGGGC AGACTCCTCC CTTGGTGCGT CACACGATTT TTTTCTCTCG	9240
ACTGTTCTTT AATGCATCAT TAACGACGCT TTTCTTCTAG GTGGTTCATA AGGAACAGGA	9300
AGATTCAGGT TGACTTTTCT AATCCTAGAA TAAAGTGCTG AAAACAATTC GGAATAGGCA	9360
TAGAGACTAG ACAATTTGAG GAGCTGCTTG CGTCTGTTC GAACACATTT TCCCACCACG	9420
TGAAGAAAAA GATGGCGGAA GCGTTTGATT GTTAAAGTTT GGAAGTCACC TCCAGCTAGA	9480
TGTTTGAGAA AAAGATAGAG ATTGTAGGCG ATACAGCTCA TCATCATACG AACTTCGTTT	9540
TTGATTAAGG TTGAACTATC CGTTTATCG CCAAAAAATC CCTCCTTCAT CTCCTTGATG	9600
AAATTCTCGG CTTGACCACG TCCACGATAA AGCTGAAACT GGTCTTGGCT GTTCCACTCG	9660
TCATATTTGT AACGAGAGAA ATAACATCGT AGAACAAGTA TCCTTCTTTT C	9711

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(2) INFORMATION FOR SEQ ID NO: 168:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3025 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 168:

CCCCTTTGTC AAAACTGTAA AATTAACGAC TCAACAATTC ATCTTTACAC CAATCTCAAT	60
GGAAAACAAA AACAAATTGA CCTCTGTCAA AACTGCTATA AGATTATCAA AACAGATCCT	120
AACAATAGCC TCTTCAAAGG TATGACGGAT CTGAACAATC GTGACTTCGA TCCCTTTGGT	180
GATTTCTTCA ATGATCTAAA CAATTTCAGA CCTTCTAGCA ATACTCCTCC TATTCCTCCA	240
ACCCAATCAG GTGGAGGTTA CGGTGGAAAC GCGGTTATG GTTCCCAAAA TCGTGGATCT	300
GCTCAAATC CGCCACCTAG CCAAGAAAAA GGCCTGCTGG AAGAATTTGG TATTAATGTA	360
ACTGAAATTG CCCGTCGTGG AGACATTGAC CCCGTTATTG GCGCGACGA TGAGATTATC	420
CGTGTTCATCG AGATTCTCAA TCGTAGAACC AAGAATAATC CTGTCCTTAT CGGTGAACCT	480
GGTGTTCGAA AAACGGCCGT TGTCGAAGGT CTAGCTCAGA AAATTGTCGA TGGCGATGTG	540
CCACATAAAC TCCAAGGTAA ACAAGTCATC CGTCTGGATG TGGTTAGCTT AGTTCAAGGA	600
ACGGGGATTC GAGGACAATT TGAAGAACGC ATGCAAAAAC TCATGGAAGA AATTGCAAAA	660
CGTGAAGACA TCATCCTCTT TATCGATGAA ATCCATGAAA TTGTTGGTGC TGGTTCTGCG	720
AGTGATGGTA ATATGGACGC AGGAAATATC CTCAAGCCAG CCCTTGCTCG TGGAGAACTG	780
CAACTAGTCG GTGCTACTAC CCTCAATGAA TACCGTATCA TTGAAAAGGA TGCTGCCCTC	840
GAGCGTCGTA TGCAGCCTGT TAAAGTCGAT GAACCAACGG TGGACGAAAC AATCACTATT	900
CTCAAAGGGA TTCAAAGAA ATACGAAGAT TACCACCACG TTCAATATAC AGATGCTGCG	960
ATTGAAGCAG CTGCAACTCT TTCCAATCGC TACATCCAAG ATCGCTTCTT GCCTGACAAG	1020
GCCATTGACC TCCTAGATGA AGCTGGTTCT AAGATGAACT TGACCTTGAA TTTTGTGGAT	1080
CCTAAAGTAA TTGATCAGCG CTTGATTGAG GCTGAAAATC TCAAGTCTCA AGCTACACGA	1140
GAAGAAGATT TTGAGAAGGC GGCCTACTTC CCGGACCAGA TTGCCAAGTA TAAGGAAATG	1200
CAAAAGAAAA AGATCACAGA CCAGGATACT CCTAGCATCA GCGAGAAAAC TATTGAGCAC	1260
ATTATCGAGC AGAAAACCA TATCCCTGTT GGTGATTGTA AAGAGAAAGA ACAATCTCAA	1320
CTCATCCATC TAGCCGAAGA TCTCAAGTCT CATGTTATTG GTCAAGATGA TGCAGTCGAT	1380
AAGATTGCCA AGGCTATTCC CCGTAATCGT GTCGGACTTG GTACCCCTAA CCGCCCAATC	1440

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GGAAGCTTCC TCTTCGTTGG GCCAACTGGT GTCGGTAAGA CAGAACTTTC CAAACAACTG	1500
GCTATCGAAC TTTTGGTTC TGCTGATAGT ATGATTGCGT TTGATATGAG TGAATACATG	1560
GA AAAACATA GTGTGGCTAA GTTGGTCGGC GTCCTCCAG GTTATGTTGG CTATGATGAG	1620
GCTGGTCAAT TAACTGAAAA AGTTCGCCAC AATCCATATT CTCTCATCCT TCTCGATGAA	1680
GTGGAAAAAG CTCACCCAGA TGTATGCAC ATGTTTCTTC AAGTCTTGA CGATGGTCGT	1740
TTGACAGACG GGCAAGGACG CACCGTTAGC TTCAAGGATG CCATCATTAT CATGACCTCA	1800
AATGCAGGTA CAGGAAAGAC CGAAGCTAGC GTTGGATTG GTGCTGCTAG AGAAGGACGT	1860
ACCAATTCTG TCCTCGGTGA ACTCGGTAAC TTCTTTAGCC CAGAGTTTAT GAACCGTTTT	1920
GATGGCATTG TCGAATTTAA GGCTCTCAGC AAGGATAACC TCCTTCAGAT TGTCGAGCTC	1980
ATGCTAGCAG ATGTTAACAA GCGCCTCTCT AGCAACAACA TTCGTTTGA TGTAAGTAT	2040
AAGGTCAAGG AAAAGTTGGT TGACCTAGGT TATGATCCAA AAATGGGAGC ACGCCCACTT	2100
CGTCGGACTA TTCAAGACTA TATTGAGGAC ACAATCACTG ACTACTACCT TGAAATCCA	2160
AGCGAAAAAG ATCTCAAAGC AGTTATGACT AGCAAGGGAA ACATTCAGAT TAAATCTGCC	2220
AAAAAGCTG AAGTTAAAAG TTCTGAAAAA GAAAAATAAA TCCTATAAAA AAGGAGTAGA	2280
AAATGAAAT TTTCTGCTTC TTTTCTTACT AAAATAACTG TAATTTCTTG ACAGCTTGCC	2340
CTTTGTCCAT TATGATATAT AGTAGACTGA ATCTGAAATA GTACGAAACA ATTGCTAAAA	2400
CATTTATAGA AATTAATTTT ACTTTCCCAA TCGATTGTT CTCATCTTAT TTCAATCTGC	2460
TATAGTCAAT TGAAACAAGA ACAAGACAAA AGAGCCTCAT AAAAGGTATT GCAACTTGGT	2520
AATACCTTTT TGAGGTGCTT TTTGATATGA GCCCATGTTT TCTCAATAGG ATTGTA CTCA	2580
GGTGAGTAGG GAGGAAGAGG TAAAAGTTTA TACCCTAACT CTTACACAAA GAGTTCTAAC	2640
TTACCCATTC TATGGAATCT TGCATTATCC ATAATAATAA CCGATGGTGT GGTAAATGTT	2700
GGTAAGAGAA ACTTCTGAAA CCAAGCTTCA AAAAAGTCGC TCGTCATCGT CTCTTCGTAA	2760
GTCATTGGAG CGATTAACTC ACCATTCAAT TGTTAGACCT GCAACCAAAG AAATTCTCTG	2820
ATATCTTCTT CCAGATACTT TGCCTCTTCT TAACTGACCT TTTAATGAGC GACCATATTC	2880
TCGATAAAAA TAAGTATCGA ATCCTGTTTC GTCAATCTAA ACAGGTGCTA GGTGCTTTAA	2940
ACTATTAAAA TTCTTAAGAA ATAAGGCTAC TTTTCTGGG TCTTGTTTAT AGTAGGTGTA	3000
GTTCTTTTTT TTTTCGAGTG TAGCC	3025

(2) INFORMATION FOR SEQ ID NO: 169:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4104 base pairs

1078

(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 169:

TTTAAGGTTT TAAAAAAGT TTTGAAAGG TTTCTTCTTT ATTTTTTAAG GGAGAGATAA	60
CGTTGATATC TAAATCGTGG TCAAAGCCGG CAATTTTTCC TTTAGATGTG TATTGGTGAA	120
TATCATAATC TAAATCAGTT TTAGGACTGC TCTCCAAAAA TCCTGAGTCT GAGCCGTAGA	180
CGGAATCCAA ACAGAGGTAA ACTGCTGT ATCAATACTG TGTCTTCCA TGAAGTAGAC	240
ACCAACGTAG ATGCCGATGT TTTAGCACC CAGTGATGCT AGTTTGCTC GAAAGTTTC	300
GACACCTTCG TTCATATTAG ACATGGTTTT GTCTCCACG TCAAGCCAAT AGTAACTAGG	360
GCTGTAAGGA GAGGCAGCAT TGTAGAAAAC TTCGGCAGCC TTTCCATTT CTGGACACT	420
TTTTCCAGCT ACATAAGCGT AGACAGCAAC TGGGACATTC CGCTTTTGAA GTTCAGTGAT	480
ATGACTCTTA TAGGCCTTGT CTATTCCATT GATAAATGAA GCATCATTTT CTTTGTGCT	540
TTGAGCACCA CTGTGAACAC GAACAATAGC ACCTGAAATA TTTGTGAGA GGGCATCGTA	600
GTGATTTCC TCAGGACGCT GCCAGCCAGA GAGCTCAATA ATCGGTTTGT CTAAGTGMTT	660
CAAAGCCTGT GCTTCAATCT GTGCTATATT GGATTTTGT TAAACGATT GGCTGTCATT	720
AAGTGGGCGA TTGATGATTA AAATGAACAT CATAATCCCA AAAAACTAA ATAAAAAAG	780
TGGATGAATT TGTTTTCTCA TATCTTATAA TTCTACCCTA AAAATCAAAA AAAATCAAAA	840
AAATGGGTTA AGGAAGAGAC TTTAGAGCAT TTTTTCATTC AAGAGTGCGG AATGATTTGA	900
AATATGGTAT AATAAAGGG AATTTCTACA GAAAGAGAA GATTATGTCA AATTTTGCCA	960
TTATTTTAGC AGCGGGTAAA GGGACTCGCA TGAAATCTGA TTTGCCAAAA GTTTTGCACA	1020
AGTTTGCGGG TATTTCTATG TTGGAACATG TTTCCGTAG TGTGGGAGCT ATCCAACCTG	1080
AAAAGACAGT AACAGTTGTA GGACACAAGG CAGAATTGGT TGAGGAGGTC TTGGCTGGAC	1140
AGACAGAATT TGTGACTCAA TCTGAACAGT TGGGAACTGG TCATGCAGTT ATGATGACAG	1200
AGCCTATCTT AGAAGGTTTG TCAGGACACA CCTTGGTCAT TGCAGGAGAT ACTCCTTTAA	1260
TCACTGGTGA AAGCTTGAAA AACTTGATTG ATTTCCATAT CAATCATAAA AATGTGGCCA	1320
CTATCTTGAC TGCTGAAACG GATAATCCTT TTGGTTATGG ACGAATTGTT CGTAATGACA	1380
ATGCTGAGGT TCTTCGTATT GTTGAGCAGA AGGATGCTAC AGATTTTGAA AAGCAAATCA	1440
AGGAAATCAA CACTGGAACA TACGTCTTTG ACAACGAGCG TTTGTTTGAG GCTTTGAAAA	1500
ATATCAATAC CAATAACGCT CAAGGCGAAT ACTATATTAC AGACGTCATT GGTATTTTCC	1560

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GTGAAACTGG	TGAAAAAGTT	GGCGCTTATA	CTTTGAAAGA	TTTGTATGAA	AGTCTTGGGG	1620
TAAATGACCG	TGTGGCGCTT	GCGACAGCTG	AGTCAGTTAT	GCGTCGTCGC	ATCAATCATA	1680
AACACATGGT	CAACGGTGTT	AGCTTTGTCA	ATCCAGAAGC	AACTTATATC	GATATTGATG	1740
TTGAGATTGC	TTCGGAAGTT	CAAATCGAAG	CCAATGTTAC	CTTGAAAGGG	CAAACGAAAA	1800
TTGGTGCTGA	GACTGTTTTG	ACAAACGGTA	CTTATGTAGT	GGACAGCACT	ATCGGAGCAG	1860
GAGCGGTCAT	TACCAATTCT	ATGATTGAGG	AAAGTAGTGT	TGCAGACGGT	GTGATAGTCG	1920
GTCCTTATGC	TCACATTTCGT	CCAAATTCAA	GTCTGGGTGC	CCAAGTTCAT	ATTGGTAACT	1980
TTGTTGAGGT	GAAAGGATCT	TCAATCGGTG	AGAATACCAA	GGCTGGTCAT	TTGACTTATA	2040
TCGGAAACTG	TGAAGTGGGA	AGCAACGTTA	ATTTCGGTGC	TGGAACATT	ACAGTCAACT	2100
ATGACGGCAA	AAACAAATAC	AAGACAGTCA	TTGGAAACAA	TGTCTTTGTT	GGTTCAAATT	2160
CAACCATTAT	TGCACCAGTA	GAACCTGGTG	ACAATTCCTT	CGTTGGTGCT	GGTTCAACTA	2220
TTACTAAAGA	CGTGCCAGCA	GATGCTATTG	CTATTGGTCG	CGGTCGTCAG	ATCAATAAAG	2280
ACGAATATGC	AACACGTCTT	CCTCATCATC	CTAAGAACCA	GTAGGAGCCT	ATCATGGAGT	2340
TTGAAGAAAA	AACGCTTAGC	CGAAAAGAAA	TCTATCAAGG	ACCAATATTT	AAACTGGTCC	2400
AAGATCAGGT	TGAATTACCA	GAAGGCAAGG	GAAGTGGCCA	ACGGGATTTG	ATTTTCCACA	2460
ATGGGGCTGT	CTGTGTTTTA	GCAGTAACGG	ATGAACAAAA	ACTTATCTTG	GTCAAGCAGT	2520
ACCGCAAAGC	TATCGAGGCT	GTCTCTTACG	AAATTCCAGC	CGGAAATTTG	GAAGTAGGAG	2580
AAAACACAGC	CCCTGTGGCA	GCTGCCCTTC	GTGAATTAGA	GGAAGAAACA	GCCTATACAG	2640
GGAAATTAGA	ACTCTTGATC	GATTTTTATT	CAGCTATTGG	CTTTTGTAAT	GAGAAGTTAA	2700
AACTATATTT	AGCAAGCGAT	TTGACAAAAG	TGGAAAATCC	GCGTCCGCAG	GATGAGGATG	2760
AAACCTTGGA	AGTCCTTGAA	GTGAGCTTAG	AAGAAGCGAA	AGAATTAATC	CAATCAGGTC	2820
ATATCTGTGA	TGCCAAGACA	ATTATGGCTG	TTCACTATTG	GGAGTTGCAG	AAAAAATAGA	2880
GGAGGTCAGT	ATGGGTAAAT	CTTTATTAAC	GGATGAAATG	ATTGAAAGAG	CTAATAGAGG	2940
CGAAAAAATT	TCAGGTCCTC	CTTTGCTAGA	TGATAATGAG	GAAACTAAGA	TTTTACCAAC	3000
CTCTTCTTCC	CGTTTTGGTT	ATGCCAATCC	TAAGGATCAT	GGTTTTAGCC	AGGAAACCTT	3060
GAAGATTCAG	GTCGAACCAT	CTATTCATAA	AAGCCGTCGT	ATTGAAAATA	CCAAGAGAAA	3120
TGTCTTCAAT	TCTAAGTTGA	ATAAAATCTT	ATTTGCGGTC	ATCTTTCTCT	TGATTTTGCT	3180
TGTTTTAGCA	ATGAACTTTT	TGTAATAGAA	AAGGAATTGA	AATGAAAATA	GGAATTATTG	3240
CTGCTATGCC	AGAAGAACTG	GCTTATCTGG	TCCAGCATT	AGATAATGCC	CAGGAGCAAG	3300

1080

TGTTTTTGG GAATACCTAT CATAACGGAA CCATTGCTTC TCATGAAGTC GTTCTGTAG	3360
AAAGTGGAAT TGGTAAGGTC ATGTCTGCTA TGAGTGTGGC GATTTTGGCT GATCATTTCC	3420
AGGTGGATGC CCTTATTAAT ACGGGTTCAG CTGGGGCAGT AGCAGAAGGT ATCGCTGTTG	3480
GGGATGTCGT GATTGCTGAC AAATTAGCCT ATCATGACGT GGATGTCACA GCTTTTGGCT	3540
ATGCTTATGG ACAAATGGCG CAACAACCGC TTTATTTGCA ATCAGACAAA ACCTTTGTTG	3600
CTCAAATCCA AAAGAGTTTA TCTCAATTGG ACCAAAACTG GCATCTTGGT TTGATTGCTA	3660
CAGGAGATAG TTTTGTGCA GGAAATGACA AGATAGAAGC GATTAAGTCC CATTTCCCAG	3720
AAGTTTTAGC CGTGGAGATG GAGGGGGCAG CTATTGCTCA AGCAGCGCAT GCCCTCAATC	3780
TCCCAGTCTT AGTCATCCGA GCTATGAGTG ACAATGCCAA CCATGAAGCA AACATCTTTT	3840
TTGATGAGTT TATTATCGAA GCTGGACGTC GCTCTGCCA AGTCTTGTG ACCTTTTGA	3900
AGGCTTTAGA TTAAGCGGAA ATTTGACAGT TTTTCTAGCT TATGATAAGA TTTAAGTAAA	3960
GAAAAGCTAG AAAACGTTTC AGAGGATATT ATGAGTATTG AAATGACCGT CAGTGAGATT	4020
GCAGAGGTCT TAGGATTATC TCGCCAAGCA ATCAATAACC GTGTCAAAGA ATTACCAGAA	4080
GAAGACACAG ATAAAAATGA CAAG	4104

## (2) INFORMATION FOR SEQ ID NO: 170:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8876 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 170:

CACGGATAGG CTCGGCTTTC ATCAGTCCTC AGGCTGATTT ACTAATAGCA ACTTTCCTCG	60
ACAAAGTCCA CAGCGATACG TnTGGGTATC AATCCTACGC TTACGCTGAT ACCTTTGCTG	120
GCAGGATTGG CAACGATAGA GCTTGATTGG CTTGGAGTTA CTATTGGGCA AGGATGGTAC	180
AAACCGTAAT CCATCCACTG CTTTCAACAG TTCCTTAAAA TCCCGATCCT TGTGTTGATA	240
GCCTTTCCCT TGAAAATAGA GGTGATAATG ACAGAGTTCA TGTCGGACAA TTTTCCTAAA	300
AACGTCCAAC CCCAGTTCCT GATAAACCTT GGGATTAAAA TCCAAATGCC CATCTTTGGG	360
GAAAAATCGC CCACCTGTCG AACGTAGACG CCTATTCCAC TGGACATGAT GGATAAAAGG	420
TCTGCCGAAG TCTTCTAGTG AAACCTGCTT GACGTAATCA GTCAGTTTCA TTTGGAGCTA	480
GGAGAGACAG ATTAACCTTT TCACGTTTCA TATCAATTTT CTTAACCCAA ACGCTCACCA	540
AATCTCCAAC TGCCACCACT TGACTAGGGT GTTTGATAAA CTTGCGACTC ATATGGGAAA	600



1081

TATGGATGAG ACCGTCTCA TGAATCCGA TATCAACAAA AGCACCGAAA TCAACAACGT	660
TACGCACCAC TCCTTCTAGC TTTTGTCCAA CCACTAAGTC CTTGATATCT AGGACATCTT	720
GGCGAaCACA GGTGCGTCAA AGGAATCAGC GAAATCTCGA CCTGGTTTGA GAAGATCTGC	780
AATGATATCT TTAAGAGTTT CTGGACCAAG GTCTAACTCT TGCGCCATT TCTTGACTGA	840
AAGCGACTTG AGTTTGCTTT GGGCTTCTC GTTTAGGTCT TTAATATCTA AACGTTTGAA	900
GAGTTCCTTA ACTGCAGTGT AATTCTCTGG GTGAACTCCT GTATTATCAA GGATATTGCT	960
ACTTTCAGGG ATACGAAGGA AACCAGCAGC CTGCTCAAAG GCCTTGGCTC CCAGACGAGG	1020
AACTTTCTTG ATTTGGGCGC GTGAAGTGAT TTTTCCTTCT TCCTCGCGGT ATTTGACAAT	1080
ATTTTCAGAG ATAGTTTGT TGAGTCCAGC TACGTGTGAA AGAAGAGCTG GGCTAGCTGT	1140
ATTGACATTG ACACCAACTT GGTTAACCAC TGTATCGACA ACAAAGTCCA GACTCTCAGA	1200
TAGTTTCTTC TGACTGACAT CGTGTGGTA TTGACCGACA CCAATTGACT TAGGATCGAT	1260
TTTGACCAAT TCCGCAAGAG GATCTTGCAA ACGACGGGCG ATAGAAATGG CAGAGCGTTT	1320
TTCAACGGTC AAGTCTGGAA ACTCCTGACG AGCAAGTTCG CTGGCAGAAT AGACAGAAGC	1380
ACCACTTTCA TTAACGATAA CATAGCTGAC TTCAGGGAAA TCTTTCAGAA CTTCGGCTAC	1440
AAAAGCTTCA CTTTCACGAC TGGCCGTTC AATTCCAATG GCAATAATCT CTACACCGTA	1500
TTGACCAATT AAATCTGCTA AATCTTCTT GGGTCTTCG ATTTGACGAG CTGATGCTGG	1560
TTTAACAGGA TAAATAACCT GAGTTGTCAG CATTTTCTCT GTTGCATCCA CGACAGCTAG	1620
CTTGGCACCT GTACGAAAGG CTGGGTCAA TCCAAGAACC ACGCGCCCTT TCAGTGGAGC	1680
AACCAAGAGG AGATTGCGCA GATTGTCAGA AAAAAGTTGG ATAGCTCCTT CTTGAGCTTT	1740
CTCAGTTAAT TCTGTCCGAA TACGACGCTC GATAGCAGGC AAGACCTTTT TCTTAACGGA	1800
TTGCTGAACA ACTTCATCAA TATAAGCATT TTTACCTTG AAACGAGTAG CAAAGAAGGC	1860
AAGAATACGG TCCGTGCGAT GTTCAAAACC GATCTTCAAG ACACCAAGTT TCTCCCCACG	1920
ATTGAGAGCC AAGGTACGAT AGCCTTGCA TGTTCCTTGT GTCTCTGAAA AATCATAATA	1980
AATCTGAAAA ACCTGCTTTT CATCAAGACT TTCATCCTTG GCTTGAGAAG TAAGTTTAGA	2040
GTGTCTCAGC ACTTCTGAT AAGTCATAGA ACGCAAGGTC ACATCTTCCG ATAAGGCTTC	2100
GACCAAAATA TCAACTGCAC CGGTCAAGGC TTCCTTGCCA GTCGCAAATC CTTACAGAC	2160
GAACCTTTTCA GCTTCTTCT CTAAGTCAAC TATATTCTGC AAAATCAAGC GAGCAAGAGG	2220
AAAGAGTCCA GCTTCACGGG CAATGGTTGC CTTGGTACGA CGCTTTTCTT TATAAGGAAG	2280
ATAGAGTTCT TCAACGTCTG CTAATTTTTC GGCAACTAAG ATAGCTTCTT CCAATTCCTT	2340

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GGTCAACTTA CCTGTCTCTT GAATCTTAGC TAAGACAGCT TCCTTACGGT CATTGAGATT	2400
TGTCAGACTT TTATCCAAAT CAATAATAGC CTTAATCGCC ACCTCATCCA GACTACCACT	2460
CATGTCCTTG CGATAACGCG CGATAAAGGG AATAGTCGCC CCTTCAGCTG TCAAACCTTAG	2520
AACGGTATCA ATTTGCTTTA ACGTCACTCC CAAATCCTGA GAGATTTTTT CATATTTTTT	2580
ATCCATAAAT CTATTATACC ACAAGCTAAA CGTTTCAAAT TAACTCGTAG AACATTTAAA	2640
AAATATGTAG GAAATAGATT TATATGCTAC AGCGCAATAA CTGCACTTA AAGAGCATTG	2700
CCACCTTTTT TTAACCAAGC CATGATATCA AAAGTATTTA ATGGATCAGA CATAATAGCC	2760
AGTTCTGGAA GATGTTCTCG ACCTGGAATA ACACATTGAC TTTTCAAATT TTTATATGGA	2820
CGATTGACTA AAATTAATTT ATTAGAATAA GGAAGATTAT CCATCTTATT TAAAATTTCT	2880
TCACTAGCTG AATCTTTATT ATCAAATTTA AAATAAAGAT TATTCCAATT TATGCGTTTT	2940
TTTCTTTTTT CCCACTTAGT TCGTGCTTCT TCAATACTAG AATAATGTAG AAAATGAATA	3000
TCTATATCTC CTAAGTGCCC CAAAGGATAA ACTTCATGAG TCCAGCTCGG TGAAATAAGT	3060
TCCTCTTCGA AAACAAGTTC TTGTTCCATA TAATAACGAA AATGCTTTGT AAGTTTATAA	3120
TAATCATCAG GAAGAATAAA TAAACCAACA AAAGGTGTTT TATATTGAAA ACCAAGCTGT	3180
TTATAAATTA ATCCTCCAAC ACAATTATTA CTTATAATCG TAAAATCTAA TCTATCAAGC	3240
TCAAGAAAAG GGAAAATTCC TTTCTCTGCA GCTATTAACT TATGATAAAC AATATCAGAA	3300
TCTAAATATT CACCGTCATT TTTTAACCAA GCACTAAAAT TTGCCAATTC TTGAATATAT	3360
TGTTTTTTCG CTCTTTCTAT ATCATAGTTT TCTAAGACGG CGCAATCTTT GATTCTATTT	3420
TCATAATTTT CTAATATGAT TTGTAGGAG TCTTTTAGAG GTTTAGCATC TATAACAGGT	3480
TTATAGATAT ATGTCGGGAA ATTAATATAG GTTGCAGTTT TAGAGTGAAT ATAAAGTCTC	3540
CAAATAAGGT TGTATATATC AAATTGATTT ATTTTTCGTA AAAGCTTACT ATTGAATAAT	3600
TTTCCAAATA ATGAGCGATA TTGTTTCTA ATTCGATGAT CTGTATCATC CATCTTTTGT	3660
AAAACCTGAA CATTCGTTAA ATTTTCTGTC AACCAATTAT CCCCCAAAA AGGATAAAAG	3720
TAAAATACTC CATCAACCAA ATCAGCAAAA TGACCAAGAA CAACATCAGA ATCGGATAAT	3780
TTTATCGCAT GATACATCTT TTCAAATGTC CAATCAAATA ATGAATCATT TGAAGATAGA	3840
AACGTAATAT AATCTCCTGT AATCATATCA GACAACTCAG CAAAAGAATT CTCATCTATA	3900
ATCTTAATAT TAAATGATAG ATTCATCTGT TGGCTAATGG AAGCTATCTC CTCTGTAGAT	3960
TGATTTACAA TAATAACTTC TATATCTTTT AATGTTTGTC TCTCCACTAT TGACAAAGAC	4020
TCTAATAAAC TATTTTATAT TCCTTGATGT AACAAAACAA CACTAATTGA GTAAGTCAGT	4080
TTGACTACCT CCCATAATTT TCTGATAATG ATTTTCTTTT TATTTAATTA TAGCACAATT	4140

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ATGATATATA TCAGGTAATA TCAAGCTATA TTATCTCTTA GCTACTCAAT TTGAAATTTT	4200
AACTTTTCCC TTTTCCGCAA AATAATAGTA TAATAGAGGT AGAATCTAGA ATCGAGGTAC	4260
ACCTATGGCT GTCAAATTTA CAAAACGAGA CGACTTGGAC AAGATGTTTG AAGAGTTTGC	4320
TAACTCCCT GATTGAAAC AAGTTACTTT CCCTGATGAC AAAGAGAAAA AAGTCAAAGC	4380
AGAAAAGAAA AACTAGATGA CTGCTTTTCA ACAACTCCCA TCTAGTGAC TTCAAAC TGG	4440
AGCCATTTTT CTCTCCATTA TCATTGAAGC CCTTCCCTTC GTTCTGATAG GAAGCATTGT	4500
CTCAGGGCTG ATTGAAGTTT ATATCACACC TGACAAGGTT TATCATTTTC TCCCTCGAAA	4560
TCGTTGGGGG AGAATCTTTT TTGGGACCTT TGTCGGTATA CTTTTCCCTT CTGTGGAATG	4620
TGGAATCGTC CCCATCATCA ATCGTTTTCT GGAAAAAAG GTTCCAAGTT ACACGGCCGT	4680
TCCTTTTCTT GTGACAGCAC CTGTTATCAA TCCCATGTT CTTTTGCGA CCTATTCTGC	4740
CTTTGGCAAC TCCTTCCATG TCGCCCTATT ACGAGCTCTG GGTTCCTTC TTGTGGCTGT	4800
AATACTAGGA ATTTTTCTAG GATTTTTCTG GCAAGAACCG ATTCAGAAAG AAAATCGTCT	4860
GGCTTGTCAT GAGCATGATT TTTCTTACTT GAGTTCTGCA AAAAAAGTTT TTCAAGTCTT	4920
TGTGCAGGCC ATTGATGAAT TTTTGTATC GGGGCGTTAT TTGGTATTG GCTGCCTCTT	4980
TGCTTCTATA ATACAGGTCT ACGTTCGGAC TCGGATTCTG ACCTCTATCA GTGCGACCCC	5040
TCTTTTGGCC ATCCTGCTCT TGATGATTTT AGCCTTTCTT CTTTCGCTCT GTAGTGAGGC	5100
GGATGCCTTT ATAGGTGCTT CTCTTCTCTC GAGTTTCGGT TTGGCACCAG TTCTGGCCTT	5160
TCTCGTCATT GGTCCAATGC TGGATATCAA AAATATTCTC ATGATGAAAA ATTACTTGAA	5220
AGCACGATTT ATCAGTCACT TCATAACAAT TGTAACCTCT GTCGTCTTAG TCTATTCTCT	5280
CTTGATTGGA GTTATCCTAT GATTCGATTT TTAGTTTTAG CTGGCTATTT TGAAC TGA	5340
ATTTACCTCC ATCTGTGGG CAACTAAAC CAGTACATCA ACATGCACTA TTCCTATCTG	5400
GCCTATATCT CCATGGTGCT TTCTTTTATC TTGGCTATCG TTCAATTGTA TATCTGGATG	5460
AAGCAAGTCA AAACCCACAG TCATCTGAAC AGCCGATTAG CCAAGATAAC GAGTATTTCT	5520
CTTCTGGCTA TTCCACTGT CATCGGCTTA ACTTTCCCAA CTGTTAGCTT GGATTCTCAG	5580
ACTGTTTCTG CTAAAGGTTA TCATTTCCCC CTATCGGAAG GAACGGATCT AGCCATTCAG	5640
ACAAGCGAAG GGACGACAAG CCAATATTTG AAACCAGATA CCAGTTCTTA TTTTCAAAA	5700
TCAGCCTATG AAAAGGAAAT GCGAACGGCG GCGGATAAAT ACTTATCCCA AGATAGTATT	5760
CAGATCACTA ATGAAAACTA TATGGAAGTC ATGGAGGCTA TCTACGACTA TCCAGATGAG	5820
TTTGAGGGCA AGACAATCCA GTTTACAGGC TTTGTCTATA ACGACCCAG TCATGCCAAT	5880

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AGTCAATTTC TGTTCGATT CGGCATTATC CACTGTATCG CAGATTCTGG TGTCTATGGA	5940
TTGCTGACCA AGGGCAATAC CCGGCAGTAT GAAAACAACA CTTGGATAAC AGCCAAAGGA	6000
AAACTGGTCA ATCACTACCA TAAAGAACTC AAACAAAACC TTCCAACCTT GGAAATCGAC	6060
AGCTTTACCA AAGTCGATAA ACCAGAAAAT CCCTATGTAT ATAGAGCTTT TTAAGAAAAT	6120
CAAGATAAAA ACGAACAAGT TCTCTTCTGA ATAACAGAAA AAGAGCCTGT TCGTTTTTTG	6180
TTATATGAAA ATTAGTGACT TGTAGATTTT CATCTTATAC CATTCCCAGC AATACAAGTA	6240
GCTCATAGAA AATAAGCGAG CCACTCATTC ATTAGACTAG CGATTTCCTT AGGTGCTTGA	6300
GTATAAAGCT CATGGCCAAA GTTTTCTAAA AAAATAGTAT CAAAATAGTC TGGCAATTCT	6360
TTTAGGGCTT CCTCTCTCCA TGTAGCTTCA TTAGGATAGC GAGGACTAAT AAACAAGGTA	6420
TCTCCCACTT CTCTCTTAAA AGCTTGTATT TTTCTCCGTA GcGGAGTATC GCTTCTATAT	6480
TTTCATAATT TATAGCCAAC TCATATCTAT TATACTCAAC ATTCCAGTGA TAAGACTGTC	6540
TTACAGCTTT TCCCATATTT TCTGACCAAT GCTTTGCTTC AGATTTTTCT TTAGAAGTAA	6600
GAACATCTAA GTCCGAAACA ATTTGAGATT TGATATAATT TTTAGTTTCC TCTAACTCTG	6660
TATCCAAAGG TAAAATCTTA TCTAAATCTA GATAGCCACC ATCCAAAAGA ATCAGTTTCT	6720
TTACTTCTTC AAATTCCGAT GCGAAATAAC GAGCTAAATC TCCTCCAAGA GAATGGCCTA	6780
TCAGACAGAT AGATTCTTCC TCTACAAATT CATTTTTAAA CCATGATTTT AATTCTGTTT	6840
CATCTCGAAG ATGCTTTTCA TATGGATTTA GAAAATAGAC CTGCGAATCT AGTTCTTGAA	6900
GAAAATCCTT GCTATGATAG GCATTGCTTC CCAAACCGCC AATAAAATAT TTTTTCATTC	6960
TCTACTTAAT ACTATGCTTA TTCATCTTTT GTTCAAAGAT AGTTGTGATA ATCTGACGCA	7020
ATTCTTCGCG TTTTTTTTCT GGAATCTCAC CACTTGTGTTG AGCTACAGCG TAGAGTTCAG	7080
GGTATTCAAT TGAAATGCGT TTAATCGTAC GTGTTGTAGC ATGTTTTCTG ACAAAAAACG	7140
GGATTGCTT AATCAAGTCT TGTGGGACTA GCGCCAGAAT CTTCTCAGTA GTTCTTTTGT	7200
CACTAATATT AGACATTGTA AGCCTTTTCT TAATCATTTT CTGTTCTTTT TCTGTAAAAT	7260
CTTTTAATTC CATTGATTA GTCCTCCTAT TTTCTCTAAG TTAAATTATG TACTAATACA	7320
GATGAAACTA CAAAGAATAA ACTTTAAGAA ATCTTCTCAC TGATAAGATT TTAGCATTAG	7380
ACTTCCTGCG AAACAAAATA TGGTATAGTA GTTCTATGAA TTATGAAGCA AGTAAACAAC	7440
TAACTGATGC ACGATTTAAA CGTCTTGTTG GTGTTGAGCG CACGACTTTT GAAGAGATAT	7500
TAGCTGTATT AAAACAGCT TATCAACTTA AACACGCAA AGGTGGACGA AAACCTAAAT	7560
TAAGCCTAGA AGACCTTCTT ATGGCCACTC TTCAATATGT GCGAGAATAC CGCACTTATG	7620
AAGAAATTGC GGCTGATTTT GGTATTCACG AAAGCAACTT AATCCGTCGG AGCCAATGGG	7680

1085

TTTAAGTAAC TCTTGTTCAA AGTGGTGTTA CGATTTCAG AACTCCTCTC AGTTCTGAGG	7740
ACACGGTAAT GATTGATAGC CATTCCTATC AATATCGTAT CTTTGGACAT AGCCAATAAA	7800
TGTTTCATTT TTGCGTGGTT TCTGGCTATT AACGATTGAA ATAACCCACC AACTTATCAA	7860
AAATAGAAAT AAAAATCCTA AGATTACTGT CATATCATAA CACTATTAAA GTTTAACCCA	7920
CTTATCATTA TCCATGATAA AAGGCTTAGC CAGTCCCTCG CCTGTATAAT CCGCATACTT	7980
GGTGCCCAAA TACTTGTAGC AATCTTCCTT ACTAGCAAAT TTAATCGCTT GGTAGGGCTC	8040
TTCGAAAGTC AATTTCTCTA CAAATAAGAA ACCGTCATCA GCAGGTACTA AGACCCCAAC	8100
GTGGCCTACA AACAGATACT CGCCATCCAA ATTGTCGTGC AAGACTACAG ACAGCATTCG	8160
AGCTTTTTC A TTGAATTGAA ATTGTGAGAA GAATGCTTCC ATCTTTTCAG CGTGAACCTT	8220
GACATCTGTA GTTGACTCAG TTGGAACCTC CGAAAATAGA ATATCAAACCT CTTCTTATC	8280
TTGTGAATCA AAGACCTTTC CTTTATCAAT CGCATCATTA TCTAGGAAAA GCAACTGGTC	8340
ATTCTTTTCA AGCTTTGGAA TGGTGACTGA ATTTTTCAAA AGACAATAAC TATTGATACG	8400
GCAGTTGGTC CCAACAAAAT CGCCCTTCTT TTGATTCCAG AGATGACTGA TTTTCTCAAC	8460
ATCGTATTCG GTGTGAGTAA AGGAAGTGAA ATCTCCTGAT AAGCCAGTTG AGCCGACAAT	8520
GGTATTATAG TCATTAACGA GATTAAAAAA TGCATCAACA CTATTTGGAT CCAAGTGAGC	8580
TGATAAGAGA GATTTGACCT CTTCTGTA CTACCTGGTTG TTAGGTTGG TGTATGAAGC	8640
TTTCCATGGA ACTTTGCTG AACTGCTTTG CCTTTGATTC GTCCCCCTCAG AAGTAGCATG	8700
TTGTTGTGTA CAAGCAGCCA AGCCTAAAAA CAAGGCTGAA CAGATTCCTA ATGTGGCTAA	8760
TTTTCTTGAT TTCTTCATTT CTTTCTCCTA AATGTCTTGG ATTAAAGTTT CTTTAACTAT	8820
TGCTTTACAG ATATTGATTA CTTTCTCATT TAATGTGTTT ATCGTCTTTC CTCCGG	8876

(2) INFORMATION FOR SEQ ID NO: 171:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 14736 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 171:

CGCAAACCTT CGCGGTCGGA AGGTAGTTTT ATGACACGAT TTGAGATACG AGATGATTC	60
TATCTCGATG GAAAATCATT TAAGATTTTA TCTGGTGCCA TTCATTATTT TAGGGTTCCT	120
CCAGAGGATT GGTATCATTC GCTCTATAAC TTGAAGGCTC TTGGTTTTAA TACGGTAGAG	180

1086

ACTTATGTTG CTTGGAATTT ACACGAGCCT TGTGAAGGTG AGTTTCATTT TGAAGGTGAT	240
CTGGATTTAG AGAAATTTCT CCAAATAGCG CAGGATTTGG GTCTCTACGC AATTGTGCGT	300
CCGTCTCCAT TTATCTGTGC GGAATGGGAA TTCGGTGGCT TACCAGCTTG GCTCTTGACC	360
AAGAACATGC GAATTCGCTC ATCCGACCCA GCATATATCG AGGCAGTTGG TCGCTACTAT	420
GATCAGTTAT TGCCAAGACT GGTGCCTCGT TTGTTGGACA ATGGTGGCAA TATTCTCATG	480
ATGCAGGTTG AAAATGAGTA TGGTTCTTAC GGAGAAGATA AGGCTTACCT GAGAGCGATT	540
CGACAGCTAA TGGAAAGAGTG TGGCGTAACC TGTCCCTCTT TTACATCAGA TGGTCCATGG	600
CGAGCTACTC TGAAGAGCTGG AACCTTAATT GAAGAGGACC TCTTTGTAAC AGGAAACTTT	660
GGTTCTAAGG CACCTTACAA CTTTTCGCAG ATGCAGGAAT TCTTTGATGA ACATGGTAAG	720
AAATGGCCAC TCATGTGTAT GGAGTTCTGG GATGGTTGGT TCAATCGCTG GAAAGAACCG	780
ATTATCACAC GGGATCCTAA GGAATTGGCA GATGCAGTTC GAGAGGTTTT GGAACAAGGC	840
TCTATCAATC TTTACATGTT CCACGGTGGT ACAAACCTTG GTTTCATGAA TGGTTGCTCA	900
GCTCGAGGAA CTTTGGACCT GCCACAAGTT ACGTCTTATG ATTACGATGC CTTTCTGGAT	960
GAAGAAGGAA ATCCAACCTGC TAAATATCTT GCAGTCAAGA AGATGATGCC AACACATTTT	1020
TCAGAGTATC CGCAGTTGGA ACCACTCTAC AAAGAGAGTA TGGAGTTGGA TGCTATTCCA	1080
CTAGTTGAAA AAGTTTCTTT GTTTGAAACC TTAGATAGCT TGTCAAGTCC TGTAGAAAGT	1140
CTCTATCCTC AAAAGATGGA GGAGCTGGGA CAAAGTTATG GCTACCTACT TTATCGAACA	1200
GAAACAACT GGGATGCAGA AGAAGAAAGA CTTCTGATCA TTGATGGTCG AGATAGGGCC	1260
CAGCTGTATG TCGATGGTCA GTGGGTTAAA ACTCAATATC AGACAGAGAT TGGGGAAGAT	1320
ATTTTTTATC AAGGTAAGAA GAAAGGGCTA TCTAGGTTAG ATATCTTGAT AGAAAAATG	1380
GGGCGTGTC AACTATGGGCA TAAGTTCTTA GCGGATACGC AACGTAAGGG AATTCCGACA	1440
GGGGTCTGTA AGGATCTGCA TTTCTTACTA AACTGGAAAC ACTATCCACT CCCACTAGAC	1500
AATCCTGAGA AAATTGATTT TTCAAAAGGA TGGACTCAAG GACAACCAGC CTTTTACGCT	1560
TATGACTTTA CAGTCGAAGA GCCAAAAGAT ACTTACCTAG ACTTGCTCTGA GTTTGGTAAG	1620
GGGGTTGCCT TTGTCAATGG GCAGAATCTA GGACGTTTTT GGAACGTTGG CCCAACTCTC	1680
TCACTTTATA TCCCTCATAG CTATCTCAAG GAAGGTGCCA ACCGCATCAT TATCTTTGAA	1740
ACAGAAGGTC AATATAAAGA AGAGATTCAT TTAACGTA AACCTACACT AAAACATATA	1800
AAGGGGAAAA ACTTATGACA ATGTAGGAT GCCGTATTGA TGGACGTTTG ATCCACGGAC	1860
AAGTAGCCAA TCTTTGGGCT GGAAAACTAA ATGTTTCACG CATTATGGTT GTAGACGACG	1920
AAGTTGTCAA CAACGATATT GAAAAGAGTG GTTTGAAACT TGGCACCACA CCAGGTGTGA	1980

1087

AATTGAGTAT TTTGCCAGTT GAGAAAGCTG CAGCCAATAT TCTTGGTGGC AAATACCATA	2040
GCCAACGTCT CTTTATCGTG GCTCGTAAAC CAGACCGCTT CCTTGGTTTG GTAGAAGCAG	2100
GTGTACCACT TGAAACCCTT AATGTTGGGA ATATGTCTCA AACACCAGAA ACTCGTTCTA	2160
TTACACGTTT TATCAACGTA GTAGACAAGG ATGTGGAAGA CTTCACAAA CTGGCAGAAA	2220
AAGGTGTTAA ACTTACTGCT CAGATGGTTC CAAATGATCC AATTTAGAC TTTTGAGCT	2280
TATTAATAA GGAAAAAAT TTTTAGGAGG TCATTGTTAT GATACAAATG TGGCAAAATTT	2340
TACTTCTCAC TTTGTACTCA GCTTATCAAA TCTGTGATGA GTTGACGATC GTTTCATCTG	2400
CAGGTTCCTT TGTATTTGCT GGTTCATTA CTGGTTTAAT CATGGGAGAT GTGACTACTG	2460
GTTTACTTAT CGGTGGTAAC TTGCAACTGT TCGTTCCTTG GGTGGTACC TTCGGTGGTG	2520
CTTCTCGTAT CGACGCAACT TCTGGTGGG TTCTTGGGAC ACCTTCTCTG TTTCACAAGG	2580
AATTGATGCA CCGCTTGCCA TTAATACAAT CGCTGTACCA GTAGCAGCTC TCTTGACTTA	2640
CTTCGACGTT CTTGGTCGTA TGACTACTAC CTTCTTCGCT CACCGTGTGG ATGCTGCAAT	2700
CGAACGCTTT GACTATAAAG GTATTGAACG CAACTACTTG CTTGGTGCGA TTCCGTGGGC	2760
TCTATCTCGT GCCCTTCCAG TCTTCTTTGC CCTTGGCTTTT GGTGGTGCCT TTGTACAATC	2820
AGTAGTAGAC TTCGTTGAAG CCTACAAATG GGTTCAGAT GGCTTGACAC TTGCAGGACG	2880
TATGCTTCCA GGTCTTGGAT TTGCAATCTT GCTTCGTTAC CTTCCAGTTA AACGTAACCT	2940
TCACTACCTT GCTATGGGAT TTGGTTTGAC AGCTATGTTG ACTGTTCTTT ACTCATATGT	3000
AACAGGTCTT GGTGGCGCTG TTGCTGGTAT CGTAGGTAAT CTTCTGCTG AAGTTGCTGA	3060
AAAAATTGGT TTCGTGAACA ACTTCAAAGG TTTGTCTATG ATTGGTATTT CTATCGTAGG	3120
TATTTTCCTT GCAGTGCTTC ACTTCAAAA TAGCCAAAAA GTAGCTGTAG CAGCACCTTC	3180
TACACCATCA GAAAGTGGG AAATCGAAGA TGACGAATTC TAATTACAAA CTTACAAAAG	3240
AAGATTTTAA TCAATCAAC AAACGTAGCT TGTTTACTTT CCAATTAGGT TGGAACACG	3300
AACGTATGCA AGCTTCTGGT TACCTTTACA TGATCTTGCC TCAGTTGCGT AAAATGTATG	3360
GTGATGGAAC TCCTGAATTG AAAGAAATGA TGAAAGTTCA TACTCAATTC TTCAATACTT	3420
CACCATCTT CCATACCAT ATCGCTGGTT TTGACCTTGC CATGGAAGAA AAAGATGGTG	3480
TAGGTTCAAA AGACGCCGTT AACGGTATCA AGACAGGTTT GATGGGACCA TTCGCTCCTC	3540
TTGGGGATAC AATCTTTGGT TCACTTGTAC CTGCTATCAT GGGGTCAGTC GCAGCAACTA	3600
TGGCTATCGC TGGCCAACCT TGGGGGATCT TCCTTTGGAT TGCAGTTGCA GTAGCGTATG	3660
ACATCTTCCG TTGGAACAG TTGGAATTTG CTTACAAAGA AGGGGTAAAC CTTATCAACA	3720

1088

ACATGCAAAG TACCTTGACA GCTTTGATTG ACGCTGCATC TGTACTTGGT GTCTTCATGA	3780
TGGGTGCTCT TGTAGCAACA GTGATTAAC TTTGAAATTC TTACAAGTTG CCAATCGGTG	3840
AAAAGATGAT TGATTTCCTAA GACATCTTGA ACCAAATCTT CCCACGTTTG CTTCCAGCAA	3900
TCTTTACTGC CTTTATCTTC TGGTTGCTTG GTAAGAAAGG TATGAACTCT ACTAAAGCTA	3960
TCGGTATTAT TATCGTACTT GCTTTGGCTC TTTCTGCCCT TGGTCACTTT GCACTTGGA	4020
TGTAATTCCT TATGACTAAA TCATTAATTT TGGTGAGCCA TGGTCGCTTC TGTGAGGAGC	4080
TTAGAGGTAG CACAGAAATG ATTATGGGCC CACAAGACAA CATTTACACA GTAGCTCTTC	4140
TTCCAGAAGA TGGCCAGAA GAATTTACTG CTAAATTTGA AGCTGTTATT GAAGGATTGG	4200
ATGATTTCTT AGTCTTTGCG GATCTTCTCG GTGGGACACC TTGTAATGTG GTGAGTCGCT	4260
TGATCATGGA AGGTCGTGAT ATTGACCTTT ACGCAGGGAT GAATCTTCCA ATGGTGATTG	4320
AATTTATCAA TGCGAGCCTT ACAGGCGCAG ATGCGGACTA CAAGAGCCGT GCTGCAGAAA	4380
GCATTGTGAA AGTTAATGAC CTGTTAGCGG GCTTCGATGA TGACGAAGAT GAATAATACT	4440
CTTCGAAAAT CTCTTCAAAC TACGTCAACG TCGCCTTGCC GTAGGTATAT GTTACTGACT	4500
TCGTCACTCT TATCCGGCAA CCTCAAACG GTGTTTGTAG CTGACTTCGT CAGTCTTATC	4560
CGGCAACCTC AAAGCAGTGC TTTGAGCAGC CTGCGGCTAG TTTCTACAG ATTTTAGTTG	4620
GAACGCGATT CAATTCATGT GACAACGTGA AAATCGTTAG AGCATTTTAT ATAGAATATA	4680
CATGGGAATG TAGCTTACTC CCATTCCCAT ATTTAATAGA AAAAGAGGAA CTCAATGCTA	4740
CATTATACAA AAGAAGACTT GCTCGAATTG GGTGCAGAAA TCACTACGCG TGAAATCTAC	4800
CAACAGCCTG ATGTATGGAG AGAAGCTTTT GAATTTTATC AAGCAAAACG TGAAGAAATT	4860
GCAGCCTTCC TACAAGAAAT CGCTGATAAA CATGACTATA TTAAGGTTAT CTTGACAGGT	4920
GCTGGGACTT CTGCTTATGT GGGAGATACC TTGCTACCTT ATTTTAAGGA AGTCTATGAC	4980
GAACGCAAAT CGAATTTCAA TGCTATTGCG ACAACAGATA TCGTTGCCAA TCCAGCAACC	5040
TATTTGAAAA AAGATGTGGC AACTGTCCTT GTGTCTTTTG CTCGTAGTGG GAATTCGCCT	5100
GAAAGTTTGG CGACTGTTGA TTTGGCCAAA TCCTTGGTGG ATGAGCTTTA TCAAGTGACG	5160
ATTACTGTG CAGCAGATGG TAAATTGGCT CTTCAAGCTC ACGGTGATGA TCGTAATCTC	5220
TTGCTCTTGC AACCAGCTGT CTCTAATGAT GCTGGATTG CCATGACTTC TAGCTTTACG	5280
TCTATGATGT TGACAACTCT CTTGGTCTTT GATCCTACAG AATTTGCTGT TAAGTCTGAA	5340
CGTTTTGAAG TTGTATCTAG TCTTGCCCGT AAAGTTTTAG ACAAGGCAGA AGATGTCAAA	5400
GAGCTCGTTG ATTTAGACTT TAACCGTGC ATCTATCTAG GCGCTGGTCC TTTCTTTGGA	5460
CTTGCTCATG AAGCTCAGCT CAAGATTTTG GAATTAACG CTGGTCAAGT TGCGACCATG	5520



1089

TATGAAAGCC CAGTTGGCTT CCGTCACGGT CCAAAATCTC TTATCAACGA CAATACAGTT	5580
GTTTTGGTCT TTGGTACAAC GACAGACTAC ACTCGTAAGT ACGACTTGGA CTTGGTTTCGT	5640
GAAGTTGCTG GTGACCAGAT TGCTCGTCGT GTTGTGCTTT TGACTGATCA AGCTTTTGGT	5700
CTTGAAAATG TCAAAGAAGT GGCCCTTGGT TGTGGCGGTG TCTTGAATGA TATTTACCGT	5760
GTCTTCCCTT ACATCGTTTA TGCCCAACTC TTTGCTTTAT TGACTTCACT CAAGGTAGAA	5820
AATAAACCAG ATACACCGTC TCCTACAGGT ACAGTAAACC GTGTAGTACA AGGTGTCATA	5880
ATTCACGAAT ATCAAAAGTA AGACAGTGTT TATGAATTCT TGACAAGAGG ATTTGTAAAT	5940
TATCAGATAA ACCATAGATT GTCAGTACGC TTTCTATGGT TTGTTTGCTT GAGAGAAATA	6000
GTAAAAGGAG AACAGAATGA AAGCATACAC AGAGCGTGTA TTTGGAAAATG TTGAGGGTGA	6060
GGATGTCTTG GCCTATCGAT TTGAGACAGA CGGTGGCTAC CAACTTGAGG TTATGACTTA	6120
TGGTGC GACT ATCTTGCCT ATGTCCGACC TGACAAGGCT GGAAATTTTG CCAATGTTAT	6180
CTTGGGATTT GATGACTTTG ATAGTTATGT AGGCAATAGT CCCAAGCATG GAGCAAGTGT	6240
AGGTCCTGTA GCGGGTCGTA TTGCAGGTGC GACCTTTGAG CTCAATGGTA AGACCTATGA	6300
CCTTGAGGTT AATAATGCTA GCAACTGTAA TCACAGTGGT TCAACTGGTT GGGATTCCAG	6360
CTTGTTTGAA GTTGAAGAAG TAAGCGATCA TGGCTTGACT CTCTACACAG AGCGTACAGA	6420
TGGGACAGGA GGGTTCCCTG GAAATCTCAA GATTTGGATC AGTTATCACT TGGAAGAAAC	6480
TGGTGCCTAT GAAATCAGCT ACAAGGTAAC GACCGATCAG GATACGCTGG TCAATCCAAC	6540
CAACCACAGC TATTTCAACT TGTCTGGTGA TTTCACGCAG ACGATTGACC GTCATGTCTT	6600
CCAACATAAC ACAGAGGGCA TTTACTCAAT CGCTCCTGAC GGTGTTCTTG CCAAACTCC	6660
AGAAGCCAAC CGTGATGTGG TCAAACACGT CTACAATGGT ACCTTGTTGA AGGATATCTT	6720
TGCAGAAGAA GATGAGCAAA TCCAGCTGGC ATCAGGTTTG GATCATCCAT TTGCCCTTCC	6780
TGCAGGCCAT GACAATGCTG GATTCCTTTA TGACCAAAAT TCAGGTCGCT TCCTGCTTTT	6840
CAAGACAGAA GCTCCTTGCT TTGTGGTCTA CACAGCAAAC TTTGTGGATG AAAGTGTCTAT	6900
CATAGGAGGT CAGCCAATGC TACAGCACAA TGGGATTGCT CTTGAAGCGC AAGCTTTACC	6960
AGATGCCATT CACAGTGACC TTAAAGGCCA AGTCATTCTT AAAGCTGGTC AAACCTTCAC	7020
CAGTAAGACA CGTTATGAAC TTGTTGTGAA GTAAAAGAGT CATTCGCGCT ACTTTTGGA	7080
GCTAGGAATA GGTACGCAGA GACAAATAGT AGGAAAATAT GATATAACTA AGCGTTGAAA	7140
GCTATCTGTT AATATAATAT TCAAACCTACA ATAAGGAGTA AGAAAGAAAC GAAGAAAATT	7200
GTATTTGCTA GTGCCTTGGC TTTGACCTTG GCTGGAGCAG TTTTGACAAA TGATGTTTTT	7260

1090

GCGAACGACA GACTTGTGGC AACACAACT ACTGATGGTA AAAATGAAAA TGTATTGACC	7320
TCAGAGGTGC TAAAACCTTC TAGTGGCAAT GTTTTGGTTG GAATCAAAGG AGAATTTGTG	7380
GCTCCTCATC AACAATCTAT TTTGGATGCC ATCAATGCTA TCTGTAAAGA AGCGGCTGAC	7440
GAAGGTTTGG TAGATAAGTA TGTCCCTATC AAATGATCAA CTGACCTAGA AAAGGCAGCT	7500
TTTGCCAGAG CTACAGAAGC ATCTATAACC ATGGATCATA CCCGTCTTTC TAGCAAAGAT	7560
CTTTGGAGTG CCTTTCCAAC TTCTAATAGT ATAATGGGAG AAAATTTGGC ATGGAATCAT	7620
GACGGTTTTTC TAAAAGCTAT TGAACAATGG CGTGCTGAAA AAGCAGATTA TGTGGAGAAA	7680
AAAATAGTGG TTCAGACAAC GGGAAATCTG GTCACTATGA GTCGCTAATT AACCTTAAAT	7740
TTACACACAT GGGGATGGCA GCTTTTAAAA ATCCTAACAA TCAATACAAA GCTATTACAA	7800
TTGCTCAAAC TCTAGGTGAT GATGCTTCTT CAGAGGAATT GGCTGGTAGA TATGGTTCTG	7860
CTGTTCACTG TACAGAAGTG ACTGCCTCAA ACCTTTCAAC AGTTAAAACT AAAGCTACGG	7920
TTGTAGAAAA ACCACTGAAA GATTTTAGAG CGTCTACGTC TGATCAGTCT GGTGGGTGG	7980
AATCTAATGG TAAATGGTAT TTCTATGAGT CTGGTGATGT GAAGACAGGT TGGGTGAAAA	8040
CAGATGGTAA ATGGTACTAT TTGAATGACT TAGGTGTCAT GCAGACTGGA TTGTAAAAAT	8100
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AAAATGGCAC TTGGTATTAC CTTGACGAAG CAGGTATCAT GAAGACAGGT TGGTTTAAAG	8280
TCCGACCACA CTGGTACTAT GCCTACGGTT CAGGAGCTTT GGCTGTGAGC ACAACAACAC	8340
CAGATGGTTA CCGTGTAAT GGTAAATGGT AATGGGTAAA CTAGGCTCAG GCCATAGGTA	8400
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TGGCCTCTTT TGATTATAA AGATTGGATT CTTGTGCGCT CAATTCAGA CTTTCTATT	8520
GTAAGCTAAT ATTTTATAGC CCATTAAAAG CATAAGCGGT AATCTAATTT AAAAAATGCT	8580
GTAATTAGTC TGAAGTCCAC ACTTACTTGT TGAGATGTTA TCTCTGTTTT TTATCGTTA	8640
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TATTATTTTT ATGTTTATAC TTTTATGCTA TAAAATATAG ATTGATATAA AGAATATAGA	8820
AAAAGCGAGG TTAATATGAG CCGAAAAAGC ATTGGTGAGA AACGCCATAG TTTCTCGATG	8880
AGAAAGTTGT CAGTGGGATT GGTATCAGTT ACTGTATCTA GTTTCTTTTT GATGAGTCAA	8940
GGGATTCAAT CGGTATCGGC CGATAATATG GAAAGTCCAA TTCATTATAA GTATATGACC	9000
GAGGGTAAAT TGACAGACCA GGAAAAATCC TTGCTGGTAG AGGCCCTTCC ACAACTGGCT	9060

1091

GAAGAATCAG ATGATACTTA TTACTTGTTT TATAGATCTC AACAGTTTTT ACCGAATACA	9120
GGTTTTAACC CAACTGTTGG TACTTTTCCTT TTTACTGCAG GATTGAGCTT GTTAGTTTTA	9180
TTGGTTTCTA AAAGGGAAAA TGGAAAGAAA CGACTTGTTT ATTTTCTGCT GTTGACTAGC	9240
ATGGGAGTTC AATGTTGCC GGCCAGTGCT TTTGGGTGA CCAGCCAGAT TTTATCTGCC	9300
TATAATAGTC AGCTTTCTAT CGGAGTCGGG GAACATTTAC CAGAGCCTCT GAAAATCGAA	9360
GGTTATCAAT ATATTGTTA TATCAAACT AAGAAACAGG ATAATACAGA GCTTCAAGG	9420
ACAGTTGATG GGAATACTC TGCTCAAAGA GATAGTCAAC CAACTCTAC AAAACATCA	9480
GATGTAGTTC ATTCAGCTGA TTTAGAATGG AACCAAGGAC AGGGGAAGGT TAGTTTACAA	9540
GGTGAAGCAT CAGGGGATGA TGGACTTTCA GAAAAATCTT CTATAGCAGC AGACAATCTA	9600
TCTTCTAATG ATTCATTCCG AAGTCAAGTT GAGCAGAATC CGGATCACAA AGGAGAATCT	9660
GTAGTTCGAC CAACAGTGCC AGAACAAGGA AATCCTGTGT CTGCTACAAC GGTGCAGAGT	9720
GCGGAAGAGG AAGTATTGGC GACGACAAAT GATCGACCAG AGTATAAACT TCCATTGGAA	9780
ACCAAAGGCA CGCAAGAACC CGGTCATGAG GGTGAAGCCG CAGTCCGTGA AGACTTACCA	9840
GTCTACACTA AGCCACTAGA AACCAAGGT ACACAAGGAC CCGGACATGA AGGTGAAGCT	9900
GCAGTTCGEG AGGAAGAACC AGCTTACACA GAACCGTTAG CAACGAAAGG CACGCAAGAG	9960
CCAGGTCATG AGGGCAAAGC TACAGTCCGC GAAGAGACTC TAGAGTACAC GGAACCGGTA	10020
GCGACAAAAG GCACACAAGA ACCCGAACAT GAGGGCGAAG CCGCAGTAGA AGAAGAACTT	10080
CCGGCTTTAG AGGTCACTAC ACGAAATAGA ACGGAAATCC AGAATATTCC TTATACAACA	10140
GAAGAAATTC AGGATCCAAC ACTTCTGAAA AATCGTCGTA AGATTGAACG ACAAGGGCAA	10200
GCAGGGACAC GTACAATTCA ATATGAAGAC TACATCGTAA ATGGTAATGT CGTAGAACT	10260
AAAGAAGTGT CACGAACTGA AGTAGCTCCG GTCAACGAAG TCGTTAAAGT AGGAACACTT	10320
GTGAAAGTTA AACCTACAGT AGAAATTACA AACTTAACAA AAGTTGAGAA CAAAAATCT	10380
ATAACTGTAA GTTATAACTT AATAGACACT ACCTCAGCAT ATGTTTCTGC AAAAACGCAA	10440
GTTTTCCATG GAGACAAGCT AGTTAAAGAG GTGGATATAG AAAATCCTGC CAAAGAGCAA	10500
GTAATATCAG GTTTAGATTA CTACACACCG TATACAGTTA AAACACACCT AACTTATAAT	10560
TTGGGTGAAA ATAATGAGGA AAATACTGAA ACATCAACTC AAGATTTCCA ATTAGAGTAT	10620
AAGAAAATAG AGATTAAAGA TATTGATTCA GTAGAATTAT ACGGTAAAGA AAATGATCGT	10680
TATCGTAGAT ATTTAAGTCT AAGTGAAGCG CCGACTGATA CGGCTAAATA CTTTGTAATA	10740
GTGAAATCAG ATCGCTTCAA AGAAATGTAC CTACCTGTAA AATCTATTAC AGAAAATACG	10800

1092

GATGGAACGT	ATAAAGTGAC	GGTAGCCCTT	GATCAACTTG	TCGAAGAAGG	TACAGACGGT	10860
TACAAAGATG	ATTACACATT	TACTGTAGCT	AAATCTAAAG	CAGAGCAACC	AGGAGTTTAC	10920
ACATCCTTTA	AACAGCTGGT	AACAGCCATG	CAAAGCAATC	TGCTCTGGTG	CTATACATTG	10980
GCTTCAGATA	TGACCGCAGA	TGAGGTGAGC	TTAGGCGATA	AGCAGACAAG	TTATCTCACA	11040
GGTGCAATTA	CAGGGAGCTT	GATCGGTTCT	GATGGAACAA	AATCGTATGC	CATTTATGAT	11100
TTGAAGAAAC	CATTATTTGA	TACATTAAAT	GGTGCTACAG	TTAGAGATTT	GGATATTAAA	11160
ACTGTTTCTG	CTGATAGTAA	AGAAAATGTC	GCAGCGCTGG	CGAAGGCAGC	GAATAGCGCG	11220
AATATTAATA	ATGTTGCAGT	AGAAGGAAAA	ATCTCAGGTG	CGAAATCTGT	TGCGGGATTA	11280
GTAGCGAGCG	CAACAAATAC	AGTGATAGAA	AACAGCTCGT	TTACAGGGAA	ACTTATCGCA	11340
AATCACCAGG	ACAGTAATAA	AAATGATACT	GGAGGAATAG	TAGGTAATAT	AACAGGAAAT	11400
AGTTCGAGAG	TTAATAAAGT	TAGGGTAGAT	GCCTTAATCT	CTACTAATGC	ACGCAATAAT	11460
AACCAAACAG	CTGGAGGGAT	AGTAGGTAGA	TTAGAAAATG	GTGCATTGAT	ATCTAATTCTG	11520
GTTGCTACTG	GAGAAATACG	AAATGGTCAA	GGATATTCTA	GAGTCGGAGG	AATAGTAGGA	11580
TCTACGTGGC	AAAACGGTCG	AGTAAATAAT	GTTGTGAGTA	ACGTAGATGT	TGGAGATGGT	11640
TATGTTATCA	CCGGTGATCA	ATACGCAGCA	GCAGATGTGA	AAAATGCAAG	TACATCAGTT	11700
GATAATAGAA	AAGCAGACAG	ATTCGCTACA	AAATTATCAA	AAGACCAAAT	AGACCGGAAA	11760
GTTGCTGATT	ATGGAATCAC	AGTAACTCTT	GATGATACTG	GGCAAGATTT	AAAACGTAAT	11820
CTAAGAGAAG	TTGATTATAC	AAGACTAAAT	AAAGCAGAAG	CTGAAAGAAA	AGTAGCTTAT	11880
AGCAACATAG	AAAAACTGAT	GCCATTCTAC	AATAAAGACC	TAGTAGTTCA	CTATGGTAAC	11940
AAAGTAGCGA	CAACAGATAA	ACTTTTACACT	ACAGAATTGT	TAGATGTTGT	GCCGATGAAA	12000
GATGATGAAG	TAGTAACGGA	TATTAATAAT	AAGAAAAATT	CAATAAATAA	AGTTATGTTA	12060
CATTTCAAAG	ATAATACAGT	AGAATACCTA	GATGTAACAT	TCAAAGAAAA	CTTCATAAAC	12120
AGTCAAGTAA	TCGAATACAA	TGTTACAGGA	AAAGAATATA	TATTCACACC	AGAAGCATTT	12180
GTTTCAGACT	ATACAGCGAT	AACGAATAAC	GTAATAAGCG	ACTTGCAAAA	TGTAACACTT	12240
AACTCAGAAG	CTACTAAAAA	AGTACTAGGA	GCAGCGAATG	ATGCAGCCTT	AGATAACCTA	12300
TACTTAGATA	GACAATTTGA	AGAAGTTAAA	GCTAATATAG	CAGAACACCT	AAGAAAAGTA	12360
TTAGCGATGG	ATAAATCAAT	CAATACTACA	GGAGACGGTG	TAGTTGAATA	CGTAAGTGAG	12420
AAAATCAAAA	ATAACAAAGA	AGCATTATATG	CTAGGTCTTA	CTTATATGAA	CCGTTGGTAC	12480
GATATTAAAT	ATGGTAAAAA	GAATACAAAA	GATTTATCTA	CGTACAAGTT	TGACTTTAAC	12540
GGAAATAATG	AGACTTCAAC	GTTGGATACT	ATTGTGCGAT	TAGGAAATAG	TGGACTAGAT	12600

1093

AACCTGAGAG	CTTCAAATAC	TGTACGTTTA	TATGCGAATA	AACTTGCATC	GGTAAAAGGA	12660
GAAGATTCAG	TCTTTGACTT	CGTAGAAGCG	TATAGAAAAC	TGTTCTTACC	AAACAAAACA	12720
AATAACGAGT	GGTTTAAAGA	AAATACAAAG	GCATATATAG	TCGAAATGAA	GTCTGATATT	12780
GCAGAAGTAC	GAGAAAAACA	AGAATCACCA	ACAGCCGATA	GAAAATATTC	ATTAGGAGTT	12840
TACGATAGAA	TATCAGCACC	AAAGTTGGGG	CATAAGAGTA	TGTTATTACC	ACTACTAACT	12900
TTACCTGAAG	AATCTGTGTA	TATTTTCATCG	AATATGTCTA	CACCTTGCATT	CGGTTTCGTAT	12960
GAAAGATATC	GTGATAGTGT	GGATGGAGTT	ATTCTTTTCAG	GAGATGCTTT	ACGAACTTAT	13020
GTAAGAAATA	GAGTTGATAT	AGCAGCGAAA	AGGCATAGAG	ACCATTATGA	TATTTGGTAC	13080
AATCTTCTTG	ACAGTGCTTC	AAAAGAAAAA	CTTTTCCGTT	CTGTGATAGT	TTATGATGGA	13140
TTCAATGTAA	AAGATGAGAC	AGGAAGAACT	TATTGGGCAA	GGTTAACGGA	TAAAAACATC	13200
GGCTCTATTA	AAGAATTCTT	CGGACCTGTT	GGGAAATGGT	ATGAGTATAA	TAGTAGTGCA	13260
GGAGCGTATG	CGYATGGAAG	TTTAACGCAC	TTTGTGTTAG	ATACATTATT	AGATGCTTAT	13320
GGAACGTCGG	TTTATACTCA	TGAAATGGTT	CATAATTCTG	ATTCTGCAAT	CTACTTTGAA	13380
GGAAATGGTA	GACGTGAAGG	ATTGGGAGCG	GAGTTATACG	CACCTTGGTTT	ACTGCAATCT	13440
GTAGATAGTG	TAAATTCTCA	TATTTTAGCT	TTAAATACGT	TATATAAAGC	AGAAAAAGAT	13500
GATTTGAATA	GATTGCATAC	ATATAATCCG	GTGGAACGTT	TCGATTCCGA	TGAGGCGCTT	13560
CAAAGTTATA	TGCATGGATC	ATATGATGTA	ATGTATACAC	TTGATGCGAT	GGAAGCAAAA	13620
GCGATATTAG	CTCAAAATAA	TGATGTTAAG	AAAAAATGGT	TTAGAAAAAT	AGAAAAATTAT	13680
TACGTTCTGT	ATACTAGACA	TAATAAAGAT	ACACATGCAG	GAAATAAAGT	CCGTCCATTA	13740
ACAGATGAAG	AAGTAGCTAA	CTTAACATCG	TTAAACTCAT	TAATCGACAA	CGACATCATA	13800
AATAGACGTA	GCTATGATGA	TAGTAGAGAA	TATAAACGAA	ATGGCTACTA	TACTATAAGT	13860
ATGTTCTCTC	CTGTATACGC	AGCGCTAAGC	AATTCGAAAG	GTGCTCCTGG	AGATATTATG	13920
TTTAGAAAAA	TAGCTTATGA	ATTACTTGCG	GAAAAAGGTT	ATCACAAAGG	ATTCTTACCT	13980
TATGTTTCTA	ATCAGTACGG	AGCAGAAGCA	TTTGCCAGCG	GAAGCAAAAC	ATTCTCATCA	14040
TGGCATGGAA	GAGATGTTGC	TTTAGTGACA	GATGATTTAG	TATTTAAGAA	AGTATTCAAT	14100
GGTGAGTACT	CATCATGGGC	TGATTTCAAA	AAAGCAATGT	TTAAACAACG	TATAGATAAA	14160
CAAGATAATC	TGAAACCAAT	AACAATTCAA	TACGAATTAG	GTAATCCTAA	TAGTACAAAA	14220
GAAGTAACTA	TAACAACGGC	TGCACAAATG	CAACAATTAA	TTAATGAAGC	GGCTGCGAAA	14280
GATATTACTA	ATATAGATCG	TGCAACGAGT	CATACCCAG	CAAGTTGGGT	GCATTTATTA	14340

1094

AAACAAAAA TCTATAATGC ATATCTTCGC ACTACAGATG ACTTTAGAAA TTCTATATAT	14400
AAATAAGATT GTAGAGTTTC ATTGTTGAGT AGTGTTCCTT GTAAGGATGA GGAGTCAGAT	14460
GACAAATCGA CTCCTTTTTC TTATGGATCG ATGTAGAGAT TTGATTGAAT GCAGATTGCA	14520
GGAATCATCT TCAACTCATC AACGACCAAT GGTGACAAGG TGGATTTCAA TCCCACAGAA	14580
AATGTTGATT TGAGAAATAA CTTTGCTAGT CTAGTAAAAT AAATACAAAA CAATCCTAGA	14640
AGATTTTTTC TGGGATTGTT TTTTGCTGAG TGGGATGCTT CAAGTGTCTT GGCTTGACTT	14700
TCTTGAGGGA AGTTATATAA TAGTTGTAAT AATTAG	14736

(2) INFORMATION FOR SEQ ID NO: 172:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 11770 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 172:

ACAGGAAAGC ACGATAGCAA TCTCTTTGGA AGATTTAAAA AATATTCCTC AAAGTTTCGC	60
TGTTGCTTAC GGTGATACGA AAGTATCTTC GATTCTCTCT GTCTTGCGTG CTAATTTAGT	120
AAATCATTTG ATTACAGACA AAAATACAAT TTTAAAAGTT TTGGAAGAAG ATGGGGATTT	180
GACTTTTAGA GAGATTCTAG GTGAGTGAAA ATGATAGACT GATTCAGTTT ATCGTTTTC	240
TTTTTAGTTG ATTGCACATT TGTGCTTATA TAAACAAAAA TAGTTTATCT GTTGTTTTTG	300
GATTGACAAC TTTATTATGT AGTTGTATTC TATAGTTACA AAAGAAAATT TTAATAATTC	360
AAATGAAAAA AGCTTTTTAC ATAGTGAAAT GAGGAGGAAT TTATGGAAAT GATTGTTCCA	420
GATCAAAATTA TCATGGGTTT AATTTTATAT GCTGGTGATG CGAAACAACA TATTTATAAA	480
GCGTTAGATT ACATAAAAAA TGGTACATGT GAACGGTG TG AAGAAGAAAT ACAGTTAGCT	540
GATGCAGCCT TATTAGAAGC TCATAATCTA CAAACAAAAT TTTTGGCACA GGAAGCGTCT	600
GGTACAAAGA CAGAAATTAC AGCTCTCTTT GTTCATTAC AAGATCATCT CATGACCAGT	660
ATGACGGAGA TTAATTTAAT CAAAGAAATT ATTAGTTTGA GAAAAGAACT TCATAAAAAA	720
TAATACTAGA GTATTATCAT TGTTATTAAC ATAGAGGAGG AAAACATAAT GGTGAAGATT	780
GGTTTGTTTT GTGCAGCAGG TTTTCTACT GGTATGCTTG TAAATAATAT GAAAATTGCA	840
GCGCAATCTA GTGGAGTTGA GGCAGAAATA GAGGCGTTTT CTCAGTCTAA ATTAGCGGAT	900
TATGCGCCAA ATATAGATGT TGCACATTG GGTCCACAAG TTGCTTATAC ATTAGATAAA	960
TCAAAAGAAA TTTGTGATAA GTGTGATGTT CCGATAGCTG TTATCCGAT GATGGACTAT	1020

1095

GGTATGTTAG ATGGGAAAAA AGTATTAGAT TTGGCCCTAT CTTTGATTAG TGGTAAGAA	1080
AAGGAGATTT ATTATGTCAA AGATGGATGT TCAGAAAATC ATTGCACCGA TGATGAAGTT	1140
TGTGAATATG CGTGGCATTAG TAGCTCTAAA AGATGGGATG TTAGCAATTT TGCCATTGAC	1200
AGTAGTTGGT AGTTTGTCTT TGATTATGGG ACAATTGCCG TTCGAAGGAT TAAATAAGAG	1260
CATTGCTAGT GTTTTTGGAG CTAATTGGAC AGAGCCGTTT ATGCAAGTAT ATTCAGGAAC	1320
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TTTTGCTATT ATGGGTCTAA TTTCTTGTTT TTCAATTGCC TATTCTTATG CTAAGAATAG	1380
CGGAGTAGAG GCTTTACCAG CTGGAGTTCT ATCTGTATCT GCATTCTTTA TTTTGCTAAG	1440
ATCATCTTAT ATCCCTAAAC AAGGTGAGGC GATTGGGGAC GCTATTAGTA AAGTTTGGTT	1500
TGGAGGCCAA GGAATTATCG GTGCTATCAT TATAGGTTTG GTAGTAGGAA GTATTTATAC	1560
CTTCTTTATA AAGAGAAAAA TTGTTATTAA GATGCCAGAA CAAGTTCCAC AAGCTATTGC	1620
CAAACAGTTT GAAGCAATGA TTCCAGCATT TGTAATTTTC TTATCTTCTA TGATTGTATA	1680
TATTTTAGCG AAGTCATTGA CTAATGGCGG AACATTCTA GAAATGATTT ATTCTGCTAT	1740
TCAAGTTCCG TTGCAAGGTT TAACTGGATC TTTGTATGGT GCTATTGGAA TTGCATTCTT	1800
TATATCATTT TTGTGGTGGT TTGGTGTTC TGGGCAATCG GTAGTAAATG GAGTAGTGAC	1860
AGCTCTGCTT TTATCTAATC TTGATGCTAA TAAAGCTATG TTAGCCTCTG CTAATCTATC	1920
ATTAGAAAAT GGTGCACATA TTGTTACTCA ACAATTTTTC GATTCATTTT TAATCTATC	1980
AGGTTTCAGG ATTACGTTTG GTCTTGTAAG TGCCATGCTT TTTGCAGCAA AATCAAAACA	2040
ATACCAAGCC TTAGGAAAAG TTGCAGCTTT TCCAGCAATA TTTAACGTAA ATGAGCCAGT	2100
TGTATTTGGA TTTCCGATTG TCATGAATCC AGTTATGTTT GTACCTTTCA TTCTTGTTCC	2160
TGTACTTGCA GCTGTGATAG TATATGGAGC TATTGCAACA GGTTCATGC AGCCATTCTC	2220
AGGGGTAAAC TTGCCTTGA GTACACCAGC TATTTTATCA GGATTTTGG TGGGTGGATG	2280
GCAAGGAGTT ATTACTCAGC TGGTGATATT AGCGATGTCT ACATGGTTT ATTTTCCATT	2340
CTTTAAAGTA CAGGATCGTT TAGCTTACCA AAATGAAATC AAACAATCTT AGAGGTATTT	2400
GTGTGTTACT GTTAAACTCA CACATTTGTG CTAAAAATTA GAGAGTTAAA ATTTTCTAG	2460
TTAAAGCTT GAAAATTTCT ATAAAAATCG GTATTATATT TTCGAAAGAA ATAAAAATAT	2520
TTTCGAAAGA AAGGTGCTTA CGATGGTAAA TACAGAAGTA GCAAGAACAA CAATCAAGAC	2580
AGAATATTTT GGCAGCCTTA CTGAAAGGAT GAACAAATAT CGAGAAGATG TTTTAAATAA	2640
AAACCTTAT ATTGATGCTG AGAGAGCAGT TCTAGCAACA CGCGCCTATG AACGATACAA	2700
GGAACAACCT AATGTCCTAA AACGTGCATA TATGCTGAAA GAAATTTTGG AAAATATGAC	2760

1096

TATCTATATT	GAAGAAGAAT	CTATGATTGC	GGGAAATCAA	GCTTCTTCCA	ATAAAGATGC	2820
TCCTATTTTT	CCGGAATATA	CGCTAGAATT	TGTTCTCAAT	GAGTTGGATC	TTTTTGAAAA	2880
GCGTGATGGA	GATGTTTTCT	ATATTACAGA	AGAAACAAAA	GAACAACTTA	GAAGTATTGC	2940
TCCGTTTTTG	GAAAATAATA	ATTTACGTGC	TAGAGCTGGT	GCCTTATTAC	CTGAAGAAGT	3000
GTCTGTTTAT	ATGGAAACAG	GATTCTTCGG	TATGGAAGGT	AAGATGAATT	CTGGAGATGC	3060
TCACCTTAGCA	GTAACTATC	AGAACTTTT	GCAATTGGT	TTAAGAGGTT	TTGAAGAGCG	3120
GGCTCGTAAA	GCAAAAGTAG	CTCTAGATTT	AACAGATCCA	GCAAGTATTG	ATAAATATCA	3180
TTTTTACGAC	TCTATATTTA	TCGTAATCGA	TGCTATTAAA	GTATATGCAA	AGCGCTTTGT	3240
TGCTCTTGCT	AAAAGTTTAG	CCGAAATGC	AAATCCTAAA	CGTAAGAAAG	AATTACTTGA	3300
GATTGCAGAT	ATTTGCTCTA	GAGTCCCAT	TGAACCGCA	ACTACTTTTG	CAGAAGCTAT	3360
TCAATCAGTT	TGGTTATTC	AATGTATTTT	ACAAATGAA	TCTAATGGCC	ACTCTCTTTC	3420
ATATGGCCCT	TTTGATCAAT	ATATGTATCC	ATATATGAAG	GCTGATTTAG	AAAGTGGTAA	3480
AGAAACAGAA	GATAGCATTG	TTGAACGTCT	GACAAATCTT	TGGATTAAGA	CAATTACAAT	3540
TAATAAGGTT	CGCAGTCAAT	CACATACATT	TTCTTCAGCA	GGAAGTCCTT	TATATCAAAA	3600
TGTTACAATT	GGTGGACAGA	CTCGAGATAA	GAAGGATGCT	GTTAACCCAT	TATCTTATTT	3660
GGTATTAAAA	TCAGTTGCAC	AAACCCATCT	ACCGCAACCT	AATCTAACTG	TACGTTACCA	3720
TGCAGGTTTA	GATGCTCGTT	TCATGAATGA	GTGTATTGAA	GTGATGAAAC	TTGGTTTTTG	3780
TATGCCTGCA	TTTAATAATG	ATGAGATTAT	TATTCCTTCT	TTTATTGCAA	AAGGAGTATT	3840
GGAAGATGAT	GCTTATGATT	ACAGTGCCAT	TGGATGTGTT	GAAACGGCAG	TTCCAGGGAA	3900
ATGGGGCTAT	CGTTGCACAG	GTATGAGTTA	TATGAACTTC	CCTAAGGTTT	TACTTATCAC	3960
GATGAATGAT	GGAATTGATC	CGGCTTCGGG	TAAACGGTTT	GCACCAAGCT	TTGGTCGTTT	4020
TAAGGATATG	AAGAACTTTT	CTGAATTAGA	AAATGCTTGG	GATAAAACAC	TAAGATATTT	4080
GACACGAATG	AGTGTTATTG	TTGAAAATTC	TATTGATTTA	TCATTGGAAC	GAGAAGTTCC	4140
TGATATTCTA	TGTTCAGCAT	TGACTGATGA	TTGTATTGGT	CGTGGAAGAC	ACCTTAAAGA	4200
AGGTGGAGCA	GTATATGATT	ATATATCAGG	ATTGCAAGTT	GGAATTGCAA	ATTTGTCCGA	4260
TTCATTAGCT	GCAATTAAAA	AATTGGTGTT	TGAGGAAGAA	CGTATAAGCC	CAAGTCAGCT	4320
TTGGCATGCA	CTGGAAACAG	ATTATGCCCG	AGAAGAAGGT	AAGGTCATT	AAGAAATGTT	4380
GATTCATGAT	GCACCTAAGT	ATGGTAATGA	TGATGATTAT	GCTGACAAAT	TGGTTACTGC	4440
TGCTTATGAC	ATTTATGTTG	ATGAAATTGC	TAAATATCCT	AATACACGTT	ATGGAAGAGG	4500
GCCTATTGGA	GGAATTCGTT	ATTCAGGAAC	ATCTTCTATC	TCAGCCAACG	TAGGGCAGGG	4560



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ACGTGGAACA	TTAGCAACTC	CAGATGGACG	CAACGCCGGT	ACACCGTTAG	CAGAGGTTG	4620
TTCACCATCA	CATAATATGG	ATCAACACGG	CCCTACATCT	GTTTTAAAAAT	CTGTTTCAAA	4680
ATTACCAACA	GATGAAATCG	TAGGTGGGGT	TCTCTTAAAT	CAGAAAGTAA	ATCCTCAAAC	4740
GTTAGCCAAA	GAAGAAGATA	AATTAAAACT	AATTGCTTTG	TTACGAACAT	TCTTTAATCG	4800
TTTACATGGG	TACCATATTC	AATACAATGT	TGTTTCCAGA	GAGACGCTGA	TTGACGCTCA	4860
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GAAACATCCT	GA AAAACACA	GAGACTTAAT	TGTTCTGTGT	GCAGGATACT	CTGCATTCTT	4920
CAATGTTCTT	TCTAAGGCAA	CCCAAGATGA	CATTATAGGA	CGTACTGAGC	ATACTTTGTA	4980
AAATAAAGAG	GTTCTTTTTA	TGGAATTTAT	GCTTGACACA	TTAAATTTAG	ATGAGATTAA	5040
AAAGTGGTCT	GAAATTTTGC	CGTAGCTGG	GGTAACTTCA	AATCCCACTA	TTGCAAAAAAG	5100
AGAGGGTTCT	ATTAAATTTT	TTGAACGAAT	CAAAGATGTA	AGAGAATTGA	TTGGCTCTAC	5160
ACCCTCTATT	CATGTTTCAGG	TGATTTCTCA	AGATTTTGAA	GGCATCTTAA	AGGATGCTCA	5220
TAAAATTCGA	AGACAAGCAG	GAGATGATAT	ATTTATCAAA	GTACCTGTTA	CTCCAGCTGG	5280
ATTACGTGCA	ATAAAGGCGC	TAAAAAAGA	GGGCTACCAT	ATCACTGCAA	CAGCTATTTA	5340
TACAGTTATT	CAGGGATTAT	TAGCTATCGA	AGCAGGAGCG	GATTACCTAG	CTCCATATTA	5400
TAATAGAATG	GAAAATCTGA	ACATTGATTC	AAATTCTGTC	ATTCTGCAAT	TAGCTCTTGC	5460
TATTGATAGA	CAGAACTCTC	CTAGTAAGAT	TTTAGCTGCA	TCCTTTAAAA	ATGTAGCACA	5520
AGTAAATAAT	GCTTTAGCTG	CAGGTGCGCA	TGCTGTTACA	GCAGGAGCGG	ATGTTTTTGA	5580
ATCAGCTTTC	GCCATGCCAT	CTATCCAAAA	GGCGGTTGAT	GATTTTTCTG	ACGATTGGTT	5640
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AGTCCTTCTA	GATATATTCA	GGGGGAAAAAT	GCCTTGTTTG	AAAATGCCAA	ATCAATTTTG	5760
GATTTGGGAA	ATTGCCCTAT	TCTATTATGC	GATCAGTTGG	TTTATGATAT	TGTTGGAAAA	5820
CGATTTGAAG	ATTACCTACA	TAGGTATGGT	TTCCATATTG	TTCTGGCGCT	ATTTAATGGT	5880
GAAGCTTCTG	ACAATGAAAT	CAATCGAGTT	GTTGCCTTGG	CTGAGAAAGA	AAATTGTGAT	5940
AGTATTATCG	GTCTTGGTGG	GGGAAAGACG	ATTGATAGCG	CAAAAGCTAT	TGCAGATTTG	6000
ATTGAAAAGC	CTGTTATTAT	TGCTCCAACA	ATTGCATCGA	CCGACGCACC	TGTATCTGCT	6060
TTATCTGTTA	TTTATACAGA	TGAAGGTGCA	TTTGATCATT	ATCTATTTTA	TTCTAAAAAT	6120
CCAGATTTAG	TTTTGGTTGA	TACAAAAGTT	ATTTCAACAAG	CCCCTAAGCG	TTTATTAGCG	6180
TCTGGTATTG	CAGATGGTTT	AGCAACTTGG	GTTGAGGCGC	GTGCGGTTAT	GCAGGCAAAAT	6240
GGAAAAACTA	TGTTGGGACA	ACAGCAAACA	TTGGCTGGAG	TTGCAATTGC	GAAGAAATGT	6300

1098

GAAGAAACGC TGTTCGAGA TGGTTTACAG GCTATGGCAG CTTGTGAAGC TAAAGTGGTG	6360
ACACCAGCAT TAGAAAATAT TGTGAAGCT AATACTTTAT TGAGTGGTCT AGGTTTTGAA	6420
AGTGGAGGAT TAGCTGCGGC GCATGCAATT CATAATGGTT TTAAGTCATT GACAGGTGAC	6480
ATTCATCATT TAACACATGG TGAAGAGTA GCTTATGGAA CTTAGTACA ACTATTATG	6540
GAAAATAGAC CTAAGAAGA ACTTGATAAG TATATTGAGT TTTACAAAAA AATTGGTATG	6600
CCAACAACCTC TAAAGAAAT GCATTTGGAT CAAGTTGGAT ATGATGATTT AATAAAAGTT	6660
GGTAAACAAG CAACTATGGA GGTGAGACA ATTCATCAGA TGCCGTTTAA GATTTGCGCT	6720
TCAGATGTTG CTCAAGCTAT TATCGCTGTA GATGCCTATG TAAATTCAAA ATAAACAATA	6780
AGGACTACTG TTTCCAAAT GGTAGTCTTT TATGATCCC TGTATTGAAT TCTATAGAAG	6840
ATTGAAATAG GATGAGACA AATCGATTGG GAAAGTAAAA TTAATTTCTA TAAATGTTTT	6900
AGCAATTGTT TCGTACTATT TCAGATTCAG TCTACTATAT GTTCTTCATA AATCAAAAAG	6960
CGACATAGGT TGTCGGCTAT TTATTGTGAA TACATTAATT AGCATTCCAG TTTTATCTTC	7020
GGTCTAAAAT AAGTATTTTG TGCTATACGA GATAAGCTTC TTGACTTACT CCTTGATTTA	7080
CTGCATAACA ATGGGATAAA AAGTGGGAGA TAGAGCAATT CATAGTCATC AAAATTAATG	7140
AGATACAGTA TACAGTTTTT CCTTTAAACA CATTTCAAAT TCCCTCAAAA ATGGTATAAT	7200
AGTAACATCA CAAAATTGGA GAGAGACCAT GAGTTTTTAC AATCATAAAG AAATTGAGCC	7260
TAAGTGGCAG GGCTACTGGG CAGAACATCA TACATTTAAG ACAGGAACAG ATACATCAAA	7320
ACCTAAGTTT TATGCGCTTG ATATGTTCCC TTATCCGTCT GGAGCTGGTC TGCACGTAGG	7380
ACACCCAGAA GGTTATACTG CAACCGATAT CCTCAGTCGT TACAAACGTG CGCAAGGCTA	7440
CAATGTCCTT CACCCAATGG GTTGGGATGC TTTTGTTTG CCTGCAGAGC AATACGCTAT	7500
GGATACTGGT AATGACCCAG CAGAAATTAC AGCGGAAAAC ATTGCCAACT TCAACGCTCA	7560
AATTAATGCG CTTGGATTTT CTTATGACTG GGATCGTGAA GTCAACACAA CAGATCCAAA	7620
CTACTACAAG TGGACTCAAT GGATTTTCAC CAAGCTTTAC GAAAAAGGCT TGGCCTATCA	7680
AGCTGAAGTG CCAGTAAACT GGGTTGAGGA ATTGGGAACT GCCATTGCCA ATGAAGAAGT	7740
GCTTCCTGAC GGAACCTCTG AGCGTGGAGG CTATCCAGTT GTCCGCAAAAC CAATGCGCCA	7800
ATGGATGCTC AAAATCACGG CTTACGCAGA GCGCTTGCTC AATGACTTAG ATGAACTAGA	7860
TTGGTCAGAG TCTATCAAGG ATATGCAACG CAACTGGATT GGTAAATCAA CTGGTGCCAA	7920
TGTAACCTTC AAAGTAAAG GAACAGACAA GGAATTTACA GTCTTTACTA CTCGTCCGGA	7980
CACACTTTTC GGTGCGACTT TCACTGTCTT GGCTCCTGAA CATGAATTAG TAGACGCTAT	8040
CACAAGTTCA GAGCAAGCAG AAGCTGTAGC AGACTATAAA CACCAAGCCA GCCTTAAGTC	8100

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TGACTTGGCT CGTACAGACC TTGCTAAAGA AAAACAGGG GTTTGGACTG GTGCTTATGC	8160
CATCAACCCT GTCAATGGTA AGGAAATGCC AATCTGGATT GCAGACTATC TCCTTGCTAG	8220
TTATGGAACA GGTGCGGTTA TGGCTGTGCC TGCCACGAC CAACGTGACT GGGAAATTTGC	8280
CAAACAATTT GACCTTCCAA TCGTCGAAGT ACTTGAAGGT GGAAATGTCT AAGAAGCTGC	8340
CTACACAGAG GATGGCCTGC ATGTCAATTC AGACTTCCTA GATGGATTGA ACAAAGAAGA	8400
CGCTATTGCC AAGATTGTGG CTGGTTGGA AGAAAAAGGC TGTGGTCAGG AGAAGGTTAC	8460
CTACCGTCTC CGCGACTGGC TCTTTAGCCG TCAACGTTAC TGGGGTGAGC CAATTCCAAT	8520
CATTCAATGG GAAGATGGAA CTCAACAGC TGTTCTGAA ACTGAATTGC CGCTTGTCTT	8580
GCCTGTAACC AAGGATATCC GTCCTTCAGG TACTGGTGAA AGTCCACTAG CTAACCTGAC	8640
AGATTGGCTT GAAGTGACTC GTGAAGATGG TGTCAAAGGT CGTCGTGAAA CCAACACTAT	8700
GCCACAATGG GCTGGTTCAA GCTGGTACTA CCTCCGCTAT ATTGACCCGC ACAATACTGA	8760
GAAATTGGCT GATGAGGACC TCCTCAAACA ATGGTTGCCA GTAGATATCT ACGTGGGTGG	8820
TGCGGAACAT GCTGTACTTC ACTTGCTTTA TGCTCGTTTC TGGCATAAAT TCCTCTATGA	8880
CCTCGGTGTT GTTCCGACTA AGGAACCAT CCAAAAAC CTTAACCAAG GGATGATTTT	8940
GGGAACAAGC TACCGTGACC ACCGTGGTGC TCTTGTGGCA ACCGACAAGG TTGAAAAACG	9000
TGATGGTTCC TTCTTCCATG TAGAAACAGG GGAAGAGTTG GAGCAAGCGC CAGCCAAGAT	9060
GTCTAAATCG CTCAAGAAGC TTGTTAACCC AGACGATGTG GTGGAACAAT ACGGTGCCGA	9120
TACCCTTCGT GTTTATGAAA TGTTTATGGG ACCACTCGAT GCTTCGATTG CTGGTTCAGA	9180
AGAAGGTTTG GAAGGAAGCC GTAAGTTCCT TGACCGAGTT TACCGTTTGA TTACAAGTAA	9240
AGAAATCCTT GCGGAAAACA ATGGTGCTCT TGACAAGGTT TACAACGAAA CAGTCAAAGC	9300
TGTTACTGAG CAAATTGAGT CTCTCAAAT CAACACAGCT ATTGCCCAAC TTATGGTCTT	9360
TGTCAATGCT GCTAACAAGG AAGATAAGCT TTATGTTGAC TATGCCAAAG GCTTTATTCA	9420
ATTGATTGCA CCATTTCAC CTCACTTGGC AGAAGAACTC TGGCAAACAG TCGCAGAAAC	9480
AGGTGAGTCA ATCTCTTATG TAGCTTGGCC AACTTGGGAC GAAAGCAAAT TGGTTGAAGA	9540
TGAAATTGAA ATTGTCGTCC AAATCAAAGG AAAAGTTCGT GCCAACTCA TGGTTGCTAA	9600
AGATCTATCA CGTGAAGAAT TACAAGAAAT CGCTTTAGCT GATGAAAAAG TCAAAGCAGA	9660
AATTGACGGT AAGGAAATCG TGAAAGTAAT TGCGGTACCG AATAAACTCG TTAATATCGT	9720
CGTTAAATAA CGAGTTTATT AGCTCTATCT GCCACCTTCA ATAGTCCACT GGACTATTGA	9780
AsCCAACTAA ATTAGTTAAC ATTGTTGTGA AATAAGATAG GAGTCCTTCA GAGTAGAATC	9840

1100

TGGAGGATTT TTTGAATCTT CTTATGAAAG TATGATATAC TATGGGCAAC TATAAAGTTT	9900
GAAAAGTGAA ATAAGGAGAA TAAGATGCCA GTAAATGAAT ATGGTCAAAT GATTGGGGAG	9960
TCAATGGAAG CTTATACTCC AGGTGAATTG CCTTCTTTTG ATTTCTTAGA AGGGCGTTAT	10020
GCTAGGATAG AGGCTCTTTC AGTGGAAAAG CATGCGGAGG ATTTATTAGC TGTTTATGGC	10080
CCTGATACGC CTCGGGAGAT GTGGACCTAC CTCCTTCAGG AGTCAGTAGC AGACATGGAG	10140
GAACGGTCA GCCTTTTAAA TCAGATGTTG GCTCGTAAGG ACCGTTTTTA TTATGCAATC	10200
ATAGACAAGG CAACTGGTAA GGCTTTGGGA ACTTTTTCCC TCATGCGAAT TGATCAGAAT	10260
AACCGAGTAA TAGAAGTGGG AGCTGTCACT TTTTCTCCAG AGCTCAGGGG GACACGGATA	10320
GGAACAGAAG CCCAGTATCT CTTGGCTTGC TATGTCTTTG AGGAGCTTAA CTATCGTCGC	10380
TATGAGTGA AATGCGATGC TCTTAACCTG CCATCCAGAC GAGCAGCGGA ACGTTTGGGA	10440
TTTATTTATG AAGGAACCTT CCGTCAGGCA GTGGTTTATA AGGGGCGTAC AAGAGATACG	10500
GATTGGTTGT CTATGATTGA TAAGGACTGG CCTCAAGTCA AAGCTCGATT GGAATATGG	10560
TTGCGTCCTG AAAACTTTGA TAAAAATGGA CGACAGCACA AGAGCTTGAG AGAACTTTAA	10620
GAGGTGTTGA GATGATTACT ATTA AAAAGC AAGAAATTGT CAAGCTAGAG GATGTTTTGC	10680
ATCTCTATCA GGCTGTCGGT TGGACAACT ATACCCATCA AACAGAGATG CTGGAGCAGG	10740
CCTTATCTCA TTCATTAGTA ATTTATCTGG CACTTGATGG TGATGCTGTG GTGGGCTTGA	10800
TTGCTTTGGT TGGAGATGGT TTTTCATCAG TTTTGTACA GGATTTGATT GTTTTGCCTA	10860
GCTATCAGCG TCAAGGGATT GGTAGCTCCT TGATGAAAGA GGCTTTAGGA AATTTTAAAG	10920
AGGCCTATCA AGTCCAGCTG GCGACAGAAG AGACAGAAAA AAACGTGGGA TTTTATCGTT	10980
CTATGGGCTT TGAAATCTTA TCCACCTATG ACTGTACAGG AATGATTTGG ATAAACAGAG	11040
AAAAATAAAA AAACCTGTTT GTTCTTAAGC AAAGTTTAAG GATGGTCTAG TATCATATAG	11100
TCATTAAATA AAGACCTCCT AACTTTATTT AATAAAATCC TAACTTTTT TCATCACAAT	11160
CTCCTAATGA AGCCACCCAA TCAGGTGGCT TTTTTCGGT ACGACGGGCA TGTCGTATAT	11220
CTGAGGTGTA AGTCCTCAGC CTGACTATCG TGAGGTAGCA GGGAGAGGAA GGGATAGCGA	11280
AATCGTGGCT CTACGAACAG GAACGTGATA GTAAGGCGTA TATAGCGGAT AAGGAGGCTT	11340
CAAACCTAA AGTCCAAAAA GGTAGTCGTA ACCTATATGT GTAAATCACG AGAGTAATTG	11400
AATTCGGACT AAGGTTTGTG TGAAAAAGAT AAATCTTTCT AGAGTCTAAA GACTCTGCGT	11460
CAGATTTCTT ATTTTCACTG TAACCTTTTA ACGTCTCAT ATCTTGATA AACGAGGAAA	11520
GATGTACGAC TTATCCCGTG AGGTTTCATG AGCGCTGAAA GCGTAGTAAC AACGAATCAT	11580
GAGAAGTCAG CCGAGCCCAT AGTAGTGAGG AAACCTCCGT AATGGAAGTG GAGCGAAGGG	11640

1101

GTGAATACTC AAACAGTCTG GGGAGAGACT GTTTGAGGTC TGTCGCTAGA AAGAGAAAAC 11700  
 GACAGATCGA AGTAATCCTA CTTCACTTGT GTCTGTAAAA TGAGTGGTCT GATAGAACTG 11760  
 GACTTTGAGG 11770

## (2) INFORMATION FOR SEQ ID NO: 173:

## (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4185 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 173:

CGCGAAACTA CTTTCTTAGT ATAACACTTT CAGAATCATT GTCAATAGAA ATGACTTGAT 60  
 TTTTCAATT TTTCAAGCT ATTCCAAGG GTTGTAATAAT CGTCCCTGAT TCTGCAAGAT 120  
 AAGTAGTAAA CTAACACTA AAAACAAGG TGCCAAGAGC AAGGTAATAT AGTCTCCTTT 180  
 TTTCAAGGCC TGATAACTAT ACCATGTGCG TTTTTCTCT TCCCCAAAGC GGCGAACTCC 240  
 ATGGCAGTCG CAATGGTATC AATGCGTTCT AGCGAGCTAA AAATCAAGGG CGTAATAATG 300  
 AGCAGATTGC CTTTGATTGG TTGCATAAGA GAAGCTTTCT TGGATAATTC CATCCCACGC 360  
 GCCTCCTGAG ACATCTTGAT AGTAAAGAAT TCTTCCTGCA AATCTGGAAT ATAGCGCAAG 420  
 GTCAGGCTGA CAGAATAAGC AATCTTATAG GGCACACCAA TTTGATTAA ACTGGAAGCA 480  
 AACTGACTAG GATGGGTGT CATCAAAAAG ATAATAGCCA GAGGAATGGT GCAAAGATAC 540  
 TTAATGGCCA AATTAGCAG ATAAAAGAGC TCCTGGCTGG TTAGAGTGTA GACACCGATT 600  
 CCCTGCCAAA TCACACTTCT CTCTCCATAA AGTCCAACCC CATACTCGGG AGAAAAGAGA 660  
 TAGACCATCA AAACGTTTAA AACGGCAAAT ATCGTCGCAA AAACGGCTAC AAAGGAAACA 720  
 TCTTTAAAGC GAATTTCTGA TAAATAGAGG AGAAAGACTG AAAAGATGGC AATCAGCAAG 780  
 AGCATTCTGG TATCATAGCT AATCATGGCC GCCAATGATA CCAGAATGAA AAAGAGAAGT 840  
 TTCCCAGCTC CTGACAAGCG ATGAATCACA GTATCTCTAT GCTGGTAACC GATTAATTTA 900  
 GCTTGCATCC CTCTCTCCTT TCTTTGTAAA ATGCCGTTAA ATCCAGTGGA TCCACATCTA 960  
 GTTCTTAGC CAAGTTAAAG ATGGAGGTTT CTTTGTAGATT GGCTTTTACT AACAGCTCAG 1020  
 GATCGCTCAA CAGACTGGCT GGAACAGTAT CGGCAATCAA TTCTCCATCC ACCATGACAA 1080  
 GGACCCGGTC TGAATAATCC AGCATCAATT GCATATCATG GGTAATCATG ACAATGGTAT 1140  
 GCCCTTTTTG ATGTAACCTC TCGAGAAATT CCATAATCTC AGTATAGTTC TTCTGATCTT 1200

1102

GACCTGCAGT CGGTTTCATCT AGGAGAATAA TTTCAGCTCC TAAGACCAAA ATTGAAGCAA	1260
TGGTGACACG TTTTCTCTGA CCAAATGACA GGGCAGAAAT AGGCCAATTA CGGAATTCAT	1320
AAAGTCCACA GATTTTCAAG GTTTCATATA CTCTCGTTTC AATTTCTTTC TCATCCACAC	1380
CTCGCAAACG GAGCCCTAGA GCCACCTCAT CAAAAATCAT ATTGGTTGAA ATCATTTGAT	1440
TAGGATTTTG TAGCACATAT CCTACTCGTT CCGCCCGCTC TGCAACAGAA TCGCCTTTTA	1500
TATCCTGTTT TTCCCAAAGA TAGCGTCCTT CCGTCTGAAT AAAGCTACTT ATAGCCTTGG	1560
CTAGAGTTGA TTTCCCTGCT CCATTTTTTC CGACAATAGC AATCTTTTCA CCCTTTTTAA	1620
TATCTAAATG TAGGGATTTT AAAATCGGTC TATCATCATA AGAAAAAGAT ACTTCCTCTA	1680
GTCTAAAGAG TGA CTGCAAT GCTGGGGTTT CTTTGGCCAG TTCATTCTGC AACTGAACCT	1740
GACCTTTTGA GATAGACAAG TTATCCAGAT TCGCTAATTG TTCTTCCTTG ACTAAGTCCA	1800
CACCTAATTG ACGGAGAGTC GTTAGATAAA GGGGTTCTCG AATTCATTTC TGAGTCAATA	1860
AATCAGTCGC AAGCAACTGG TCAGGGCTCC CATTAAAAAG GATACGACCA TCGTTTATCA	1920
AGACAATCCG ATCCACAGGG CGATGCAGAA CGTCTCCAA ACGGTGCTCG ATAATAAGAG	1980
TCGTCGTCCT CTCTTCCTTA TGAATCTGGT CAATCAATTC GATAATATCC TGACCTGACT	2040
TGGGATCTAG ATTGGCGAGT GGCTCATCAA ACAAGAGAAT CGGACTTTCA TCAATCAAGA	2100
CACCAGCCAG ACTGACTCGC TGCTTTTGTC CACCTGACAA ATCCTGAGGA CGCTGATCCA	2160
GTAAAGGAAG AAGGTCCAGC TTTTCAGCCC ATTTATAAAC ACGACCTTTC ATCTCATCTA	2220
GGGCTGTCTAC ATCATTTTCC AGAGCAAACG CCAAATCTTC TGCCACAGAC AAGCCAATAA	2280
ACTGCCCATC TGTATCTGTC AAAACTGTGC TAACCAGATG AGACTTATCA TAGATGCTCA	2340
TATCAAAGGC TACTTGACCC TTTATCAAAA ATTCTCCATA TGTCTGACCC TTGTAAATAT	2400
TGGGAATAAT CCCATTCAAA CACTGACCCA AGGTAGATTT ACCTGACCCA GATGGTCCAA	2460
CAATTAAGAC TTTCTCTCCC TTGTAAATGG TCAAGTCTAT CCCTTGCAAG GTCGGTTCTT	2520
GTTGTGTTTC ATACCGGAAA GAGAAATCCT TCCACTCAAT TaTAGCTTCT TTCATCTTAC	2580
TCTCTTCATT CGCTTCTTAG ACTTCTATTT TATCATAAAT CAAGCCCTTC TTGCAGTCTC	2640
TCCTCTTAAA ATCTTAGCGC CAAAAAGATT CCTATCCTAG CTTACTTGCC TAACTAATCT	2700
ATAAACATCG AAAAAGACTA GTTGCCCGAGC CTTCCCCATC ATTTTATACT CTTGAAAAAT	2760
CTCTTCAAAC CACGTCAGCT TCGCCTTGCC GTAGGTATGG TTACTGACTC CGTCAGTTTC	2820
ATCTACAACC TCAAAACCAT GTTTTGAGCC TGCTTCGTCA GTTCTATCCA CAATCTCAAA	2880
ACACTGTTTT GAGCAACTGC GGCTAGCTTC CTAGTTTGCT CTTTGATTTT CATTGAGTAT	2940
TAGTCCTTTT TCAAACTTCC TGCACGAGTT TGGGTTCTCT CATAGGCAAG TAAGAGAAGA	3000

1103

GTTCTGCAA TAGCTACAGA TACACCATTG GCAATTCCCG CAACAATCCC TTGTGCAAAT	3060
ACTTTTTCTG CCGCTTCTTG ATAAATCACA ACATCTCCAA GTGGTGCCAA GACACCCCAA	3120
ACAAGGGCAT TTGCAAGTAG TTGAATGAGA TTAATAATAA GAATATCTTT CCAGTCAAAA	3180
ACACCATTGA TCACGCGAAC GTACTTTCTA AAAAGTCCCA CAACTAAACC AAAGAGTCCG	3240
CTAGCGATAA TCCAAGTCCA CCATAGACCA TAACCAACAA GAGAGTCCTT GATTGCATGA	3300
CCAATCAACC CGACAAGCAA ACCGATAATC GGTCCAAAAA TAATAGAAAG TAGCGCTTGT	3360
ACCGCATACT GAAGCTGGAT GCTTGTATTT GGAACAGGGG TTGGAATGTT GATCATCCCG	3420
ATGACGACAA AGAGGGCAGC GCCAATTCCG ACAGCAACAA CTTGTTTAAT TGTAATTTG	3480
ATTTCCATAC TATTCTCCTA TTTTATCCTT CTATTTTCTT TATTTCAATG GTCCAAGATG	3540
AACCGACACC TACATTATAG GCCTTGGCAA AGGAACCTTG GTTGATAGCC AAACCTAAAC	3600
GATAGAGAGA GTTGATGTAA AGGATGGGTT GCCCAATTCT CACATCTGCA AATGATTTCG	3660
CATAGACAAC CTGATTTTGA TAGACCAGCA TATCAGCATG ATAGATGGTC ACTTCAAAAC	3720
GATCACCAAA TTCTGGTTCC AGCTTGTAAG ATTCTTCCCG TGTGATAGAG GTCCAAAGCG	3780
AACCGAAACG CACATCCAGA ATATCAATGG CTCCCTTCAC CAGATGATCT TCTATGATGG	3840
TCGCTACGAC TGGAAGTCTT ACAATCTGTT CCACACTGAG CTCTGGCCCT ACTTCCTCAA	3900
AAGTAATGTG ACCACTGGCC AGTTTAGCAC CAGTATAGGC ATAGACATCA CGACCGTGGA	3960
AGGTATAAGA ATGCTCTGTG TTTTGACGCC TATTGGCCAC CTCAGAAATC TCACGAATGG	4020
CTACAATGCC AACGTGTTTC TTGATAAAGG AAAGCGTCCC ATTATCTGGC GTGACAATGT	4080
ATTGATTTTT TGCAGTCTTG GCAACTACAC TCTTACGTTT CGAACCGACA CCTGGATCGA	4140
CAACCGATAC AAACGTCGTT CCCTCAGGCC AGTAATCCAC CGTCT	4185

(2) INFORMATION FOR SEQ ID NO: 174:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2069 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 174:

TGATAGAGTT AAAGCCGCTG AGTCATTCAA TCCATCTCCA ACCATCAAAA TAGTGTGACC	60
TGCTTTCTGC AGTTTCTCTA CTAACCTAAA TTCCCATCA GGTTCAGT CTGTATAGAC	120
CTGATCAAAG GGCAAATCTT TGACTAATTC CTCTGTCCTA ATCAAGGTGT CTCCTGTTGC	180

1104

CAGAATCAAT TTTTCCCCCT GTGCCTTAAG TTTATCCAAG GCTGTTTTTG CTTCTTTTCT	240
CAAAGGAGTA TGAATGCAGA ACATTCCAAT CAATTCAATTT TGATAAGCCA AGAATAAGAG	300
ATTGTAGTGA CTCTTGACT CTTCAATTAA AGCATTMTGT TCTGAACTGA TATGAATCTG	360
CTCATCTGTC ATCAAGACAT AATTCCTCAAT AAGAACTGGT TGGCCATCTA TATGAGATTT	420
GATCCCCCTG CTGCGATAT ATTGGAGTTT CCCATGCATT TCCTCATGTT CAATTCCCTC	480
TATCTCAGCT TGCTTGACGA TGGCATTAGC AATAGGATGA TAAATGTGTT CCTCAAGACA	540
GGCACTGATT CTGAGAATAT CTTCTCACT ATAGTCTCCA AAAGGTAACA CCTTTTCAAC	600
TATAGGATAA CTAGTTGTGA TTGTTCTGT CTTATCAAAC AAGAAAGTAT CAACTTCCAG	660
ATATTTCTCC AGAACATCTC CATCCTTAAT CACCATTTC ACGTTCAACC CTTCTTGAT	720
AACTGTCAAA TAAGCTACAG GAGTAGAGAT TTTCAAAGCG CAGGAGAAAT CGACCAATAG	780
GAAAGAAATA GCCTTAGAAA AAGAACCTGT CAATAGGTAA GTCAGCCCAG CCCCCAAGAA	840
ATTATATTTG ACGACTTTAT CCGCCATCTT GATGAAATAG CGTTGTTTCG TTTTCTTGTT	900
TTCTTCAGAT TTCTTCATCA ACTCAATCAG CTGTAAAATA CGGCTGTTC TCTGATTATC	960
TGTTACACGA ATGCGTAACT CTCCAGTTTC TAATACTGTA TTTGCACAAA CCAATCAGA	1020
CTCTCTTTTT TCAACTGGAA AACTCTCTCC TGTCAAGGAA CTTTCGTTGA CCATACCTAA	1080
ACCTGAAACT ACTTGTCAT CAAACAGAAT TTCATTTCTT TGAGATAAGA TCAAGACATC	1140
TCCTATTTGA ACATCGGAAC TCTTGATACT AACAAACGTA TCGCCCTGTA CTAGGAATAC	1200
ATCGCTCTCT TTTGCAAGAA GACTCTGTTT TAAATCTGTT GCAGTTTTTT TCAAGGACCA	1260
CTGATCTAAA TGATTCCCCA AATCAAGCAT AAACATGATA TTGCTAGCTG TCTTGGATTG	1320
GTTCATAAAC AAAGACAATA AAATAGCCGA ACAGTCCAAG ACTTCCATCG TTAGTYCCTT	1380
ACGCGCTAGT GTTTGATAGG CTTCTCTAAT ATAACCCAAA GCCTGATAAC AAGTCCATAT	1440
ATAGCGAATA GGATACGGCA CAAACTACG AAAAAGTACA CGCTTAACCG CTGCACCTGA	1500
AACAATAGAA TAAGCACTCT CTTCTCTACG AATGGGAAGA GTCATCAACT CAGAAACTTT	1560
CCCTTTATCA ATTCTTTTTA AAAAGGCTTC TGCATTATCT AATACAGAAA AGCCTTCTTT	1620
TATGCGTAGA GTAAAGTGCT GTTGATCCAT GTAAACTGG ATAGACTCAA TCCCCTTTTC	1680
ATCTCTCGCC AAGGAACGAA GATAGTCTTG AATATCCAAG GTAAGTGAAA AAGAAGATGA	1740
TAGTCGGATA TGTGATATC CTCTATGTAG CACTTTAAAA GACATATTAT TCACCTATAA	1800
GGCTATCTAA TTGCTCTTCT TTTTCTCTT GCTCGTACAA ATATTTGGCA TCTTGCAAGA	1860
CATCGTCTCC ATGTTGCTTC ACAACAGAAA CAGATGCATC TAGCTCGTCT TTCAACTTGT	1920
AAGCCTTAGC CAAAGCTTTA GAATAACCTT TTTAGCTTC CTTACTTGCT AAGATTTTCA	1980



1105

AACCAAGGGT ACCAAATGCG ACACCACCCA AAAATAATGA AGATTTTTTC GCAACTTTTG 2040  
CAACGGTTAA TACTTCTTTT AACATAGGG 2069

(2) INFORMATION FOR SEQ ID NO: 175:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4597 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 175:

AATCTTGGC CAATAAGCT CATCTCCATC TCCGATTGA AACAGTCACT CCCC GGACTG 60  
TTTCAACGTC CCAAGACATA ATCTTAGGCA GATTCTAAA ATTACACTCA AAGTGGAGT 120  
CATTGAGCTT TCGAATGACA GTTGAAGTTG AAATGGCCAG CTGATGGGCA ATATCGGTCA 180  
TAGAAATCTT TTCAATTAAC TTTTGGCGAA TCTTTTGGTT GATAATACGA GGAATTTGGT 240  
GATTTTTCTT GACGATAGAA GTTTCAGCGA CCATCATTTT CAAGCAATGA TAGCACTTAA 300  
AACGACGTTT TCTAAGGAGA ATTCTAGTAG GCATACCAGT CGTTTCAAGG TAAGGAATTT 360  
TATAGGGTCT TTAATGTCTA GTAATTTTGT GATAAAATGT AATTGTTCCA TATGATTCTT 420  
TCTAATGAGT TGTMTTGTCTG CTTTTCATTA TAGATCTTAT GGGACTTTTT TTCTACCCAA 480  
AATAGGCTCC ATAATATCCA TAGGGAATTT ACCCACTACA AATATTATAG AGCCCAAAGT 540  
TTTAGGTCCG TTGATAATAT GCGTTTTTTG AATTTTATAG ACTGCTCGTT TAAACTCTAT 600  
TTACTTCGTA CCTTCTGGAG CGAGACGGAA TATTAGTCAC ATACAAAATG AGTACTATTA 660  
GGATTTTATT TTCATGTACA ATTTCAGCCA GTCTTGTTAT AATCAGCCTA TAGGAATCAA 720  
GGAGGTGACT CTTATGGCTG TTTTGTGTC TTGGATGGA ATTGTGGTAG AAGTCCTTGA 780  
TGTCTTTTCT TCTTTTAATG GGGATAGTGA GTTTTCTTG TGTATAGCAT TTTGAATCTG 840  
GAATAGGACG CCATGACTGC TAAAAGATTT CTATAAATTA ATTTGATTTT CCTAATCAAT 900  
TTGTTTCATAT CTTATTTTCT TCCACTATAA ACGTCTTAAA GACAAGAGTC AGTTTGTAT 960  
GGAACGCTCT CAGTTCGAGG AGATGTTCCA ACTTCAAAGT AGTCGCTTGA CGACGCAAGA 1020  
AAAATTACAA TTGTTTACCT CTGTGTTTGC TGGCCGTTAT GATGTTTATG CTAAGAATTT 1080  
TATCAATGAA CAAGGGAAAA TTCAGTATTT TCCTTCCTAT GATTATGGTT GGAAGCAGTT 1140  
GCCACCTGAA AAACGGAGTT TCCAGACATT GACGAACTCC GTTTTGAAAT CTCATTTTTCG 1200  
TGGGGAGGCA GCTATCGGTA TCTTTCCTAT GCACTTAGAT GATAGCTGTT ATTTTGTGGT 1260

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ACTGGATTTG GATGAAGGAG ATTGGAAAGA AGCTGGTTTA ACCATTTCGAA GAATAGCCAG	1320
GGAACGCCAG ATGGAAGCCC ATTTAGAGAT TTCTCGTTTCG GGTACCGGAC TCCATATTTG	1380
GTTCTTCTTT GAGGAAGCGA TTCCGAGTCG AGAGGCTCGC TTGTTTGGAA AGAAACTGAT	1440
AGAACTGGCA ATGCAGGAAA GTATGCAACT GTCCTTTGAT TCTTTTGATC GCATGTTTCC	1500
AAATCAGGAT GTCCTTCCTA AGGGGGGATT TGGAAATTTG ATTGCCTTGC CTTTTC AAGG	1560
AGAAGCTTAC CATCAAGGGC GAACGGTCTT TGTGGATGAA CAGTTTCAGC CTTATGAAGA	1620
CCAATGGAGG TATCTACAAG AAATTCAGAG GATTTCAACT GCTAAAGTGG CACTGTTAAT	1680
CCAAGAGGAG TTAGGCAAGC AAGAATTGGA TAAGGAGTTG AAGGTCGTTT TATCCAATAT	1740
GATCCAACCTT GAAAAATCGT CTGTGACATC CAAGGCACTT TTTTCTTGAA AAATATGGCT	1800
TCCTTTTCTA ATCCCGAATT TTATAGTAGA TTGAACTAG AATAGTACAC CTCTGCTTCT	1860
AAAACATTGT TAGAAATCGA TTTGACTTTC CTGATCGATT TGTCTGTTA TTATTTCAAT	1920
TTACTATATT TAAAGCAGGC TATGCGACAG CCAACCTATC AAATTCCTGA GAGAATGTAT	1980
TTATTTGGAG AATCCGATCA TTATTTATGG TTGCAAGAG GTTTGCTGTA TCCATTGCAA	2040
GATAAATTTA AGCAGGTATC TGTGGAAGAT AGGAGAAAAGG TACAAAGGTC TATTAGCGTG	2100
GAATTTAAGG GAGAACTCAC TTTTGAGCAA GAGTTAGCCC TGCAGATAT GACTTCTAAA	2160
GAAATGGTT TACTTCATGC GGAGACTGGT TTTGGGAAGA CCGTTTTAGG TGCTGCTCTT	2220
ATCTCTGAAC GGAAAAACAA AACAATTATT CTAGTCCATA ATAAGCAACT CTTAGACCAA	2280
TGGCTAGATC GCTTAACTG CTTTTTGACT TTCGAAGAGG AGGAGGCTAT CCGTTATACG	2340
GCATCAGGTC GTGAAAAGGT AATCGGCTAT GTTGGGCAGT ACGGTGGGAC TAAGAAATGG	2400
CTGAGTAAAC TGGTTGATGT CGTTATGATT CAATCTCTAT TTAAGTTGGA AAATAGTCAA	2460
AGTCTTTTGG ATGAGTATGA GATGATGATT GTGGATGAGT GTCATCATGT CTCTGCCTTG	2520
ATGTTTGAAA AAGTTGTTGC TCAGTTTAGA GGAAGTATC TTTACGGTTT GACGGCTACG	2580
CCTGAGCGTA AGAATGGTCA TGAGCCTATT GTTTTTCAGA GAATTGGTGA GATACTCCAT	2640
ACTGCTGATA AGAGGGAAAC GGATTTTAAA CGGCAATTGC AATTAAGATT CACTTCTTTT	2700
GGTCATTTGG AAATTGAAAA GACCAAAGCA AGTAATTTTA TACAGCTTAG TGATTGGATT	2760
GCTACTGACT CAGTGAGGAA TCAGATGATT CTCAAGGATA TTCTAGCCCA AGTGGCAGAA	2820
GGACGGAATA TCTTGGTTTT AGTTAATCGA ATTCAACAGA TAGATGTCTT TGAAAAATTA	2880
TTGAAAGAGA AAGAGGTTGA TGA CTGTAC ATTATTAGCG GAAAAACCAA AGTCCGAGAG	2940
AGAACGAGTT TACTGGAGAC GTTAGAACAG TTAGATAAAG GGTGTGTTTT GTTGTCTACT	3000
GGAAAAATACA TTGGCGAAGG TTTTGACTTA CCTCAGTTGG ACACGCTTAT CTTGGCAGCA	3060

1107

CCCTTTTCTT	GGAAAAATAA	TTTGATTGAT	TATGCAGGTC	GGATTCATAG	AAACTACAAG	3120
GATAAGTCTT	TGGTGCGTAT	TTTCGATTAT	GTGGATATTC	ATGTTCCCTTA	TTTAGAAAAAG	3180
ATGTTTCAGA	AACGACAAGT	AGCTTATCGA	AAGATGGATT	ATCGTGTCAT	CGAGGGTGAG	3240
GAGAAACAAT	TCGTTTATGT	TGATAGTAGA	TATGAGAAGG	TGTTGAGAGA	GGACTTAGCA	3300
GGGGAAAGAC	AGGAATGTCT	GCTTATTTTA	CCTTATGTGC	ACCAGACAAA	ACTGATGAAT	3360
TTTCTAAAAG	AATTTAGGAT	TAGTCAAATT	GAGATATGTA	TACCAGAGAC	GGTTGCAAAT	3420
AAAGCATGGC	TAGACCAGTT	GAAGAGCCAG	AAAATTAAAG	TGTCTTTTAC	TCAATCAAAA	3480
ATAGTAACGC	CTATTCTTTT	GGTGAATAAG	ACTATTGTTT	GGTATGGTGC	AATGCCATTA	3540
TTAGGGAAGG	TAGATGAGAT	GACCATATTA	CGTTTGGAAT	CAGCTAGTAT	AGTTTCTGAA	3600
CTAGTGGCAG	GTTTACGATA	GAGAAAAATT	TTAAAAATTT	CTATGTATGA	TTTTCATTTT	3660
TTTAGTGAGA	CTGTTGCCAT	TATCACATTC	GAATCACACA	AAATAAAAAA	ATTTTATATA	3720
GTACTTGACA	AATAGATTGA	AATATCATAA	AATAAAAACG	GTTACAGAGT	TATTAATTAT	3780
TTAAGCTTCA	TGTCACCATT	AAAAATTGAA	ATAAAAGGAT	GTTATCACTA	ATACAAGTGA	3840
GCAGGAACCT	ATTTAATCAC	ATCAGAAGAA	GTTTCTTGAT	GTTTTTAAGT	AGGTTCCCTT	3900
TATTTTAAAA	GGGAAATTTT	ATGATCATAA	AACGAATACT	AAACCACAAT	GCCGTAATTG	3960
CGCAAAGTAA	AAAAGATATC	GATATTCTTC	TTTTTGGAAG	GGGAATAGCT	TTTGAAGAA	4020
AAACTGGAGA	TAAAGTAAAT	CCAATTGATA	TTGAGAAAAG	TTTTTTTCTC	AAAAATAGAG	4080
ATAATATGAC	CCGTTTTTACA	GAGATGTTTA	TTAACGTTCC	TTTGGAGTTG	GTGTACATCA	4140
CCGAAAAAAT	AATTAACCTA	GGTAAAATAA	CATTGGGTAA	TAATTTTGAT	GAAATTATCT	4200
ATATTAATTT	AACGGATCAT	ATTTCTTCGA	GCATAGAACG	TTATAAGAA	GGGATTATTA	4260
TTTCGAATCC	CCTACGCTGG	GAAATATCGA	AATATTATAA	AGAAGAATTT	GAACTTGGGA	4320
AAAGGGCTTT	ACAAATAATA	AAAAAAGAGT	TAGGTATTGA	ACTTCCAATT	GACGAAGCTG	4380
CATTCATAGC	GCTACATTTT	GTTAATGCTA	ATTTAGAAAA	TAATTTTCAA	GAGTCGTATA	4440
AAATCACTGA	AATAATTATG	GGAATTGAGA	AAATCATTCA	AGATTCTAT	TGTACTGAGT	4500
TTAACCAAGA	TTCTATTGAT	TATTATAGAT	TCATAACTCA	TATGAAATTA	TTTGCCCATC	4560
GCTTGGTTGA	GAATACAAC	TATTGTGACG	ATGATGA			4597

(2) INFORMATION FOR SEQ ID NO: 176:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 3984 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double

1108

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 176:

CGGCTTATTT ACTACTTGTT CCATCATATA TGGAAATATGC ATGAAACCTG CTCTCATATT	60
AGGGAATTTT TTATCCACTA AATAAAGAGC TTGGTACATC AATGATTGC AAACAAAGGT	120
TCCTGCACTA TTGGATACAA CTGCCGGAAG TCCCTGTTTT TTGATAGCTT GTACCATCGC	180
TTTGATAGGT AAACACTAA AATAGGCCGA TGCTCCATCA ATACGAATCG GTGTATCAAT	240
TGGTTGATTG CCTTCGTTAT CAGGTATCGG AGCATCATCT TGATTAATAG CCACTCGTTC	300
AGGTGTTAAG CCGGTCTGCG CGCTGCTTG TCCAATACAA AGTACAGCAT CTGGTTGATA	360
TCGTAATATT TCTGCCTCTA AAACCTTCTGA CGACTTATAA AAAACCGTTG GAATTTCTAC	420
CCAGCGAACT TCAGCCCCAT TAATCTCAGA TGGTAATAAT TTTACAGCCT CCAAAGCTGG	480
ATTAATCTTT TCACCTCCAA AAGGATTAAA ACCTGTAACC AATATTTTCA TTTTATTTTC	540
CTTTACTAAA ATGCGAGAAA GTACATTAAG AATATGTGAA TAACAATCAT TACTAGAGCA	600
ACACCTGCTT GAGCCTTTAT AACGCCATTC TGATCTTTCA TATCCATCAA TGCTGCTGGT	660
AGAGCGTTAA AATTAGCAGC CATTGGGGTC AATAAGGTCC CACAATAACC TGCTGTCATG	720
GCAAGAGCAC CAGCCACAAT TGGATTAGCT CCCAGAGCAA ATACAAAGGG AACTCCAACA	780
CCTGCTGTAA TAACGGTGAA TGCTGCAAAA GCATTTCCCA TAATCATTGT GAATAGAACC	840
ATTCCAAGAA CATAGGCCAA AACTCCTATA AAGCGACTAT CTGAAGGAAC AATACCGCTA	900
ATCAGATGAG AGATAACATC ACCAACACCT GCTACAGTAA AAATAGCCCC CAAAGCCCCT	960
AATAATTGAG GAACAATCCC ACTTGTGTA ACTTGCTGAG TCATTGATT ATTTTCTGAT	1020
AACAGACTCT TAGGGTGACT ATTGTAATC ACAAGAACAG AAATTGTAGC AAACAAGGCG	1080
GCAAGGCTAA TCGAAATCTT GCTAAATTCT GGAATCATTT GCGCTAAGAC CAACGCAAGT	1140
ATTGCCATCA GCATAACTGG AATAAAAAAT TTTATTTTCA ACCTGTTAGA TTCAATATTG	1200
GCTTTCATTT CATCTAAGGA TGGCAAGGTT CCGATACGGA CTGCTTAAA CAATGTTAAC	1260
AGCGATAATA GGATTACAAT AATACCAATA CTCATATTTG GCATATAGGA ACCACCTATA	1320
AACGTAATAG ACAATAGAGT CCAAAATGCA GATGTCCCAA GTCGAACTGG GTTTGTTTTA	1380
TCTTTATAAC TACAATAGGC TGTATGGAGA AATTGACAAC CAATCACAAT ATAGGTCAAC	1440
TCTAATAGTT GCTTTGCCAA CTCTGTCATT TTTGTTCTCC TCCCCTAGTC TTTTGTGATA	1500
TCAATTTTTT ATCAAATAAA TAATTATAAA TCCCCACTAC AATAAGTGTT ATAACAGCAA	1560
CAATAATAGA TGTAGAAGCA ATCCCTGCAT AATTGCTTTC ATAGCCTAAC TGATCTAATG	1620

1109

TTCCCCCTAT CAAGAGGACT CCCCCAGCAC CTACAAACGT ATTTTGAGCA AAGAAATTC	1680
CAAAATTTTC ATTGCGAGCC GCACGCGCTT TTATTGTCTC ATCTTCAACC TCTGTTAACT	1740
TTCTACCTAA TTGAGACTCT GCAGCTGCTT CTCCCATAGG TTGAACCAAA GGTCTGACAA	1800
ACTGAGGGTG TCCTCCTAGA CGAATTGAAA AGAAACCAGC TAACTCTCGA ATAAAGAAAT	1860
AAACTGTATA GAAGTTTCCA ACTGTCAGAC CTTTAATCTT TCGAATCAAA TCGATTGATC	1920
GTTGCTTGAG TCCAAAGGTT TCTGACAGCC CCACAAGAGG CAAGGTAACC ATAAAAATCG	1980
TGAGCACTCG CTGATTGCTA AATTCTTTTC CCAAAATCTC CAAAATTCA ACGAGAGAAA	2040
CACCTGAAAC TAAAGCTGTA ACCAAACCAG CTAAGACTAC TGTGCAATT GTATCAAAT	2100
TTAAAATAAA ACCCACAACA ATGATTGCTA TTCCTATTAA TCTAATCCAC TCCATATCAA	2160
ACTCCTTTAT ATTCAAATG ACAGTATTTT TAAATTTTA TCAAGATCAA TACCATTCTT	2220
TATTTAATGT GTTTTCTAG TTCTTTTGG TATTGCTAT TGGATTCCAA TTTTCTTTT	2280
TGCCATTTT TAAAAACCTC GTTATATTCT TTTGTTGTAA CAATATCTTT TTGCAATTC	2340
ATTCCTTTAA AGATATATGG ATCCCCCTTA ATACCAACTT GTGAGTATGG TTTTGAGAAT	2400
GGTACTACGT TACTTACAAC TGGAGAACCA CCAGATGAAG CTGTTGGCAT CAATAATGAA	2460
CTATCTGTCG ACCAAGCTTG AGCTTTGGCA TATTTTTCAT ATCTTTTCTC TAGGTCAGTG	2520
GTCTCAGAAA CAGCATCTTC TAACAATTC TTATATTTAT CCAAACCAGG TTTAGTACA	2580
ACATCCTTAT CTTTTCCTTT CGTAATACCA AGGTGTTTCA TGGCAGAACC AGATTTTGGA	2640
TCTATAATAT TCAAGTGAGA CGCTGGATCT TGATAGCTTG GAGCCCATCC TGTACTGTTT	2700
AAATCATAGT CTTTTGAGA AGGAGCAACA TTGCCGTATT TATCATTTTC CATCAAACCA	2760
TCAATAACAT TTCCAATAAC GTCTGTCCTC GATGTTGAG TCGCTATACT GTAGCCCAAT	2820
GATGCTGGAT CTAATGCATA GACATAAGAA AATGTTGTCG GTGCATCTGC TTCTTTATCA	2880
GTTTTTCCAC AAGCCACTAA AATAGCTGAC GTGCTCAGGA CCACTCCTGC TGTAAAGAGC	2940
CACTTTTTCT ATTTCAATAA GAATCTCCTT TGGTTTATTT TAATCTACTT TTACAATCCA	3000
ACCTTCTGGC GCTTCAATAT CGCCAACTG AATACCGTC AATTCATTAT ATAATTTACG	3060
CGTCACAGGA CCTACTTCTG TTTCATAA GAATACATGG AAATCATCAC CATGTTGAAT	3120
ACCTCCAATT GGAGAAATAA CCGCTGCTGT ACCACAGGCA CCTGCCTCTA CAAAACGGTC	3180
AAGATTATCA ATTGGAACAT CACCCTCAAT AGGAGTTAAT CCAAGCGAT GTTCTGCCAA	3240
ATAAGCAAG GAATACTTGG TAATAGATGG CAAGATAGAT GGACTCAATG GTGTTACAAA	3300
TTCATTATCA GCTGTAATTC CAAAGAAGTT AGCTGATCCG ACTTCTTCAA TCTTTGTATG	3360

1110

AGTTGATGGG TCCAGATAGA TAACATCTGA GAAATGACGT GACTTGGCCA TTTTCCTGG	3420
TAAGAGACTT GCAGCATAGT TTCCACCAAC CTTAGCCGCA CCTGTACCAT TTGGTGCTGC	3480
ACGGTCGTAC TCATCCTGAA TCAAGAAGTT GGTGGGACC AAACCACCTT TAAAGTAATT	3540
TCCAACCTGGC ATAGCAAAGA TGGTGAAAAT GTACTCTTCT GCCGGTTTTA CCCCATAAT	3600
ATCTCCGACA CCAATCAAAA GAGGGCGAAG ATATAAGGTT CCACCTGTTT CGTATGGTGG	3660
TACGTATTCT TCATTGCGAC GGACAACCTGC TTTACAAGCT TCTACAAACA TGTCTGTCGG	3720
AACCTGTGGC ATCAAGAGAC GGTACATGT ACGTTGCAGA CGTTTAGCAT TTTCATCAGG	3780
ACGGAACAGT TGAACACTGC CATCCTTAGT ACGATAAGCT TTCAAACCTT CAAATGCTTG	3840
TTGTCCATAG TGAAGACTTG GAGAAGACTC TGAAATATGC AAAGTTGCAT CCTCTGTAAG	3900
CTCTCCTTGA TCCCATGTGC CATTTTGTGA ATGAGCAAGA TAGCGATAAG GTAATTTCAT	3960
ATAGGAAAAA CCGAGGTTTT CCGG	3984

## (2) INFORMATION FOR SEQ ID NO: 177:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 8703 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 177:

TATCTAATTA TTGGTTTTTA TCGCTGACCT TGGCTATTGT TGGGGTTGTT TTACCCTTGT	60
TGCCTACAAC ACCTTTCCTT TTGTTGTCTA TTGCTTGTTC CTCCAGAAGT TCCAAGCGAT	120
TCGAAGATTG GCTTTATCAT ACCAAGCTCT ATCAAGCATA TGTAGCTGAT TTTCGTGAGA	180
CCAAGTCTAT TCGCGGTGAA CGAAAGAAAA AAATCATCGT CTCTATCTAC GTCTTGATGG	240
GAATTTCTAT TTATTTTGCA CCTCTTTTAC CAGTCAAAAT CGGTCTGGGT GCTTTGACCA	300
TCTTTATTAC TTATTATCTC TTCAAGGTCA TTCCAGACAA AGAATAGTTA AAACAGTAGT	360
TATTTGCCTT GATAAAATTG AAAGCATATT CATAACAATA TGATATAATA AAATTGAAGT	420
AATATTCAAG GAGAATCAAA TGATTTACGA ATTTTGTGCT GAAAAATGTA CTTTACTTGA	480
AAAAGCGATG CAGGCTGGAG CTCGTCGGAT TGAACCTGCT GATAATCTAG CAGTTGGTGG	540
GACAACACCC AGCTATGGAG TGAATAAGGC AGCGGTTGAA CTGGCAGCTA ACTACGATAC	600
AACCATCATG ACCATGATTC GGCCACGTGG TGGTGACTTT GTCTATAATG ACCTAGAAAT	660
TGCTATCATG CTAGAAGACA TTCGTTTGAC TGCTCAGGCT GGAAGTCAAG GGGTTGTATT	720
TGGAGCTTTA ACTGCTGATA AAAAGTTGGA TAAGCCTAAT CTGGAAAAGT TAATTGCTGC	780

1111

ATCAAAAGGA ATGGAAATTG TCTTTCACAT GGCCTTTGAT GAACTAAGTG ATGAAGATCA	840
AGCGGAAGCT ATTGACTGGC TCAGTCAAGC CGGTGTCAC TCGTATCCTAA CTCGTGCTGG	900
TGTGTCTGGC GACTCCTTAG AAAAACGTTT TGTTCACTAT CACAGAATTT TGGAGTACGC	960
TAAAGGTAAA ATTGAAATTC TACCAGGTGG GGGGATTGAC CTTGAAAACC GTCAAACCTT	1020
TATCGACCAG GTGGGGGTAA CACAATTGCA TGGTACTAAG GTTGTTTTTT AAAAAATAGA	1080
AAGGAACTGC TAGCTTTGGG TAGCAGTTTT CACTTATGTT TGAAATTTTT AAATCCTATC	1140
AATTTAATCA AGAAAAGGCT CATGATTATG GTTTTATAGA AAATAGCGAA GTCTGGACAT	1200
ATAGTTGCCA GATTTTGCAA GGTGACTTTG TCATGACTGT GTCCATCACT GCTGATAATG	1260
TGAACTTTCA AGTCTTTGAC CAAGAGACTG GTGACCTCTA TCCTCACGTT TATATGAAAA	1320
GCATGAGGGG AAGTTTGTG GGAATGTCC GTGAGGCTTG TCTGGAGATT CTTTACCAGA	1380
TTCGGAAGGC TTGTTTGTG GTGCAAGATT TTATCTGTCA TCAGACTAAG CGTATCATGA	1440
CTCAAGTTCA GGAAAAGTAT GGAAACCACT TGGAGTATCT GTGGGAAAAA TCGCCTGATA	1500
CAGCTGTATT GCGCCATGAA GGCAATCAAA AGTGGTATGC CGTCTTGATG AAAATCTCTT	1560
GGAATAAGCT GGAAAAGGCG AGAGAAGGAC AAGTGAAGC AGTCAACCTC AAGCATGACC	1620
AAGTAGCTAA TTTGCTTTCA CAAAAGGGGA TTTATCCAGC CTTCCATATG AGCAAGCGCT	1680
ACTGGATTAG TGTGTCCCTT GATGATACTT TATCAGATGA AGAAGTACTG GAATTGATAG	1740
AAAAAAGTTG GAACTTAACC TCTAAAAAT GAAATATTTT AATAATTTTC ATGAACTTTC	1800
AATTAGCTAA ATATTCTTTA CTGAAGAGAT TTTTAGAAAA TATAGGATTT ACCACACTAG	1860
AGGAATATGG TGCCATCTTC AAATACCTGA TTGAGAATGT CAAGACGGAT CGTCAGATCA	1920
TCTATTCGCC TCACTGTCAT GATGACCTCG GAATGGCAGT GGCAAATAGC CTTGCTGCTG	1980
TCAAGAATGG TGCAGGACGT GTTGAAGGGA CTATCAATGG TATTAGGGAG CGAGCTGAAA	2040
ATGCTGCTTT GGAAGAAATT GCAGTGGCTC TCAATATTCG CCAAGATTAC TACCAAGTAG	2100
AAACCAGTAT TGTCTTAAAT GAGACCATCA ATACGTCAGA AATGGTTTCT CGCTTCTCTG	2160
GTATTCAGT TCCTAAAAAC AAAGCCGTCG TTGGTGGCAA TACCTTCTCC CACGAATCTG	2220
GTATTCACCA AGATGGAGTC CTTAAAAATC CTCTCACTTA TGAGATCATC ACACCTGAAT	2280
TGTTGGTGT TAAGATTCTG CTTGAAAAAT TATCTGGTCG CCATGCTTTT GTTGAGAAAC	2340
TGAGAGAATT GGCCTTAGAT TTTACAGAAG AGGATATCAA ACCACTCTTT GCTAAGTTCA	2400
AGGCACTGGT CGATAAGAAG CAAGAAATCA CAGATGCAGA TATTCGAGCT TTGGTAGCTG	2460
GAACCATGGT TGAAAATCCA GAAGGCTTCC ACTTTGATGA TTTACAACCT CAAACTCATG	2520

1112

CAGATAATGA CATTGAAGCG CTCGTTAGCC TAGCCAAATAT GGATGGTGAG AAAGTCGAAT	2580
TTAATGCGAC AGGGCAAGGT TCCGTTGAAG CAATCTTTAA TGCTATCGAT AAGTTCTTTA	2640
ACCAATCTGT TCGTTTGGTG TCCTACACTA TCGATGCGGT AACAGATGGA ATCGATACCC	2700
AGGATCGGGT TTTGGTCACT GTTGA AAAACA GAGATACAGA AACCATCTTT AATGCAGCAG	2760
GGCTTGATTT TGATGTGTTG AAGGCTTCTG CTATTGTCTA TATAAACGCT AATACCTTTG	2820
TTCAAAAAGA GAATGCAGGT GAGATGGGAC GCAGTGTTC TTACCACGAT ATGCCTAGTG	2880
TGTAAAGGAG AAGGCTATGG CAAAGAAAAT AGTAGCTCTA GCAGGAGACG GAATTGGCCC	2940
AGAAATCATG GAGGTTGGTT TAGAAGTTCT GGAGGCTCTA GCTGAAAAA CAGGTTTTGA	3000
CTATGAGATT GACAGACGAC CGTTCGGAGG TGCAGATATT GATGCAGCAT GACCTCCCTT	3060
ACCTGATGAA ACCCTTAAGG CAAGTAGGGA AGCAGATGCT ATCCTACTAG TAGCTATCGG	3120
TAGTCCTCAG TATGATGGAG CAGTGGTTCG CCCTGAACAA GGCCTGATGG CTCTCCGTAA	3180
GGAATCAAT CTTTACGCTA ATATTCTGCC TGTAAAAATC TTTGACAGTC TCAAGCATTT	3240
GTCACCACTC AAAGTGAAC GAATTGCTGG TGTAGACTTT GTCGTGGTGC GTGAATTGAC	3300
AGGCGGGATT TACTTTGGAT ATCATATTCT TGAAGAGCGC AATGCGCGTG ATATCAACGA	3360
CTATAGCTAT GAGGAAGTGG AGCGGATTAT TCGCAAAGCC TTTGAAATTG CAAGAAATCG	3420
CAGAAAAATC GTTACTAGTA TCGATAAGCA AAATGTTCTA GCGACCTCAA AACTCTGGCG	3480
GAAAGTAGCT GAGGAAGTCG CACAGGATTT CCCAGATGTA ACCTTGAAC ATCAGCTGGT	3540
AGACTCAGCT GCTATGCTTA TGATTACCAA TCCTGCTAAG TTTGATGTTA TTGTAACGGA	3600
GAATCTTTTT GGAGATATTT TATCTGATGA ATCAAGCGTC TTATCTGGTA CACTTGGGGT	3660
TATGCCATCA GCCAGTCATT CTGAAAATGG ACCAAGTCTC TATGAACCTA TTCACGGTTC	3720
AGCACCTGAT ATTGCAGGTC AAGGAATTGC CAATCCTATT TCCATGATTT TATCAGTTTC	3780
CATGATGTTG AGAGATAGTT TCGGACGTTA TGAGGATGCA GAGCGTATCA AACGTGCTGT	3840
TGAGACAAGT CTGGCGGCAG GAATTTTAAC GAGAGATATA GGAGGTCAGG CTTCAACAAA	3900
GGAAATGACG GAAGCTATTA TTGCAAGGTT ATGAAGTTAG ACGAAAAAAT TACTCTAGTC	3960
CTTTTGATTT GGAATGTCAT CATTTTCTTG ATTTATGGTA TTGACAAATC TAAGGCAAGG	4020
AGAAGAGTTT GGCGCATCCC TGAGAAAAATC TTACTTATTT TAGCCTTTAC TTTTGGTGGT	4080
TTTGGTGCCT GGCTAGCAGG AATCATCTTT CACCACAAGA CTCGAAAATG GTACTTTAAA	4140
ATAGTTTGGT TTCTTGGGAT GGTGACCACA CTAGTAGCCT TATATTTTAT TTGGAGGTAA	4200
TGGATGGCAG GGTCTTCGAG GGAATACGCT GCTTGGGCTC TAGCGGACTA TGGTTTAAAG	4260
GTCGTGATTG CAGGATCTTT CGGTGACATT CATTACAATA ATGAACTCAA TAATGGCATG	4320



1113

TTGCCAATCG TTCAGCCTAG AGAGGTTAGA GAGAACTAG CCCAGCTAAA ACCAACCGAC	4380
CAGGTAAC TG GACTTGGA ACAACAAAA ATCATCTCAC CAGTTGAAGA ATTCACCTTC	4440
GAGATAGATA GCGAGTGGA ACATAAACTC CTAAATAGTT TGGATGATAT CCGTATTACC	4500
TTGCAGTATG AAGAGTTGAT TGCTGCTTAT GAAAAACAAC GACCAGCCTA CTGGCAGGAT	4560
TAGAAAAAT AGAAAAGGAG ATATAGTAAA CTGAAATAAG ATGTAAACAA ATGAATTGGA	4620
GCTTAACATC CATTTCCAGC AATTTTITAG AACTACAGT GGACTATTCT GGATTCAACA	4680
CATTATAAAA TTATGACAAA ACACATTCAC AAGAAGGCTA CGACATTTTA AAAGGTGAGG	4740
GCGGATGTAT CGTTTGCCCT ACTAAAGTTG GTTACATTAT CATGACCAGT GACAAGGCAG	4800
GACTTGAGCG TAAGTTCGCA GCCAAAGAAC GTAAGCGTAA CAAACCAGGT GTTGTCTCT	4860
GCGGTAGCAT GGATGAACTT TGCGCTTTAG CGCAACTCAA CCCAGAAATT GAAGCATTC	4920
ACTAAAAACA TTGGGATGAA GATATCTTC TTGGTTGTAT CCTTCCTTGG AAACCAGAAG	4980
CCTTTGAAAA ACTCAAAGCA TACGGGGATG GCCGTGAAGA ACTTATTACT GATGTACGTG	5040
GTACTAGCTG TTTTGTATC AAGTTTGGA AAGCAGGTGA ACAATTGGCT GCCAAGCTTT	5100
GGGAAGAAGG TAAATGGTC TACGCCTCAT CTGCTTCAAT GACAAAACGA TTGAACTCG	5160
CTATGAGCAA GGTGTAATGG TGTCTATGGT CGATAAGGAC GGCAACTCA TCCCAGAACA	5220
AGGAGGAGCA CGTTCAACTT CACCAGCTCC AGTTGTGATC CGTAAAGGGC TTGACATTGA	5280
TAAATCATG ATGCACCTGT CAGATACTTT TAACTCATGG GACTACCGTC AGGTTGAGTA	5340
TTATTAGGAT AGAGAAGAAG TCTAGTGTTA TGAGATATTA AAGCTCCTAA CACTGGGCTT	5400
TTGTTTAGAA TTTCTTTCT TTTCTATAG GATATGGTAT TCTATGTAGA AAATATATGT	5460
TAATAAGTAA TGCCAATATT TAAACATCAT TAGTAAAAGG AGTTAGATTG ATGAATAAAA	5520
GAAAAGTTAG TTTAGAAGAT TTTATAAAT GGTATAGTCT AAATAAGAA GAGTTATTAA	5580
ATAAGGCAAC TGTGGTGAA AAGTTTAATG ATAAATTAAA AGAAGAGTTT CTCCAGGAAT	5640
GGCCTTTGGA TAGGATTTTA ACAATGTCAA TCGATGAATA TGTAATAGGA AAGGGACAGC	5700
AAAATAAGTC TTTATGCTAC GCTCTTGAGA AGGGAAAATA CAAAATCTA TTTCTTGGA	5760
TTTCTGGTGG CTCAGCTTCA AAATTTGGTA TTTATTGGAA TAAAAACA AACAAATATA	5820
AAGATCAAGC TAATAATGAG ATTCAGAGT TGGATCAGCG ATTTTCAAAA TTAATCAG	5880
ATTTGTATGA AATTATCAA GAAGGTATTC GTTTTAACTT TGAAATCCT ATTTTGATA	5940
TGAAAAGATC AACAAATGAA TTTATTGGTC GTTCTGCTAT GGTGACAAAA TTACTTTGTA	6000
TCTATACTGA GGGAGATCCT TTCTTTGGTG TAAATATTAA TAGTCAGAAA GAATTTTGGA	6060

1114

ACCACTTTGT TTCTCAGACA AATCAAGGTG GACCTTATCT GCAAAATCAT AAAATAATTG	6120
AACTGGTGTC CAAAACCTTAT CCTGAGTTGG AGCCATCGAA ATTAGGAACT ATGCTTTTTG	6180
AGTATTCTAA GCTTTTTATG GAAAATAAGG AAGACAATAG TACAATGGAT TCATCAAACA	6240
ATTTTCGTCA TCAATTAACCT CAATCTCTAT TAAAGTCTCC AAACCTCATC CTCCGCGGTG	6300
CTCTGGCAC GGGAAAAACT TATCTTGCTA AAGAAATTGC TAAAGAATTA ACGGATGGCA	6360
ACGAAGATCA AATCGGATTT GTACAATTC ACCCATCATA TGATTATACG GATTTTGTAG	6420
AAGGTTTAAG ACCAGTATCA AATGGGGATG GAGCTATTGA GTTTAGGCTA CAGGACGGTA	6480
TTTTTAAAGA TTTTGTCTAG AAAGCAAAAG AAACCCAATT GATTGGAGGA CAAGATAATT	6540
TTGATGAGGC TTGGGATTCT TACTTAGAAT ATATAAATGT TGCTGAAGAA AAAGAATATA	6600
TAACAAAAAC ATCTTACTTA TCTGTTAATA GTAGACAAAA TTTGTCAGTA AATTATGATA	6660
GTGGTGTTCC AGGATGGTCA CTACCTAGCA AATATGTTTA CGAGTTGTAT AAAGATAAAA	6720
ATTATAATAA GCAAGAATAC TACAAAAGTG GTGGAAAAAC TGTCCTAGAA ACATTGAGAA	6780
AGAGATTTGG TTTGAAAGAC TATGTTTCCC CAACAGAAAT TGATACTGAT AAGAATTTTG	6840
TCTTCATCAT CGATGAGATC AATCGTGGGG AGATTTCTAA GATTTTGGC GAACTCTTTT	6900
TCTCTATCGA CCCCCTAT CGTGGTGAAA AAGGAAGTGT TTCTACCCAA TATGCAAATC	6960
TACACGAAAC TGATGAAAAG TTCTATATCC CCGAAAATGT TTACATCATC GGAACATGA	7020
ATGATATTGA TCGTTCAGTG GATACCTTTG ATTTTGCTAT GCGTCGTCGT TTTCTTTTG	7080
TTGAAGTTAC TGTCGAGGGT CAAGCTGGCA TGTTGGATAA AGAGTTGAAT ATCCATGCAG	7140
AAGAAGCAAA AATTCGTCTA AGAACTTGA ACGCTGCTAT CGAAAATATT CAGGAATTAA	7200
ACAGTCATTA TCATATTGGA CCAAGTTATT TTCTTAAGTT GAAGGATGTA GATTTTGACT	7260
ATGAATTACT CTGGTCTGAT TATATTAAGC CTCTCCTAGA AGACTACTTG CGAGGTTCTT	7320
ATGATGAGGT TGAACTTTG GAACTTTGA AAAAAGCATT TGATCTGACA AATAATGAGC	7380
AAAAAGATCA GGCAGTAGCT GATGACAATG AAGGCGATGA AAACGATGAT GCGGATTACT	7440
GATAATCAAC ACAAGATTAT TAAAGAAAAA TTTGTTGAAG AATATCCTAA ACTAAGCAAT	7500
CCTCTTTTAG ACAGAACCTT GGAAAGTCTA TCCCAAGATG AACGTATTTT CATTTTCCA	7560
AATGATTWGA CTCATACTCC TGATTTGGAT AAGGACCAAA AGATTTTGA AACAGTCAAT	7620
CAGAAAATCA AGACAGGGAA CGTGATTGGT TTTCTTGAT ATGGTCAGGA AAGATTAACG	7680
ATTTCTCAC GATTTTCTGA TGAGAGTAAT GACCACCTTT TGCATTATCT CTAAACAAG	7740
GTCTTCATA TCAATCTCAC TAGTTTAGAT GTTGCTTTGT CTCGTGAAGA GAGGCTTTAT	7800
CAACTTTTGG TGTATCTCTT TCCCAAGTAT CTACAAGCTG CTATTCGAAA AGGTCTTTAT	7860

1115

AAGGAATATC ATCGATTTTC TCATAACGAC AGTCATGTTA AGGGAGTGAT TGATGTAAGA	7920
AACCATCTCA AGAAAAATCT TCCTTTCACG GGAAATATTG CCTACGCAAC GAGAGAGTTC	7980
ACCTATGATA ATCCCCTCAT GCAGTTGGTC CGTCACACTA TTGAATACAT TAAGAATCAG	8040
AAAAGCATTG GTCAAGGGGT ACTAGATAAT CTCTCAACTA GTCGTGAAAA CGTATCTGAA	8100
ATCGTGCGTG TAACGCCCTC TTATAAACTA GCTGATCGTG CTAAGATTAT TCGGGGAAAT	8160
CAATCTAAAC CTATACGTCA TGCATACTTT CACGAGTACA GAAACTTACA AGAACTTTGT	8220
CTGATGATCC TAAACCAAGA AAAGCACGGT TTAGGGTATC AAGATCAAAA AATCTATGGT	8280
ATTCTCTTTG ATGTTGCCTG GCTTTGGGAA GAGTATGTTT ACACCTTGTT GCCAAAAGGT	8340
TTTGATACATC CCAGAAATAA GGATAAGACG GATGGAATTT CAGTATTTTC TGTGGGAAA	8400
CGAAAAGTAT ATCCAGATTT TTATGACAGA GAACGAAAGA TTGTTCTAGA TGCAAAATAT	8460
AAAAAAGTGG AATTGACTGA AAAAGGAATC AACCGTGAGG ACTTATTCCA GCTGATTTC	8520
TATTCTTATA TTTTAAAAGC TGAGAAGGCT GGAAGTATTT TTCCTAGTAT GGAGCAGTCA	8580
GTAAATAGTG AAATAGGAAA AGTAGCTGGC TATGGAGCTC AATTGAAGAA GTGGTCTATT	8640
CGAATCCCTC AGAATGCCTC ATTCTATAGT ACATTTTGTA AAATGATGGA AAATTCAGAA	8700
GAG	8703

## (2) INFORMATION FOR SEQ ID NO: 178:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4854 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 178:

CATCACCAGT TTTAGATGGC TTTAACAGTG AAATTATTGC TTTTAATCTT TCTTGTTTCG	60
CTAATTTAGA ACAAGTACAA ACAATGTTGG AACAGGCATT CAAAGAGAAG CACTACGAGA	120
ATACGATTCT CCATAGTGAC CAAGGCTGGC AATATCAACA CGATTCTTAT CATCGGTTCC	180
TAGAGAGTAA GGAATTCAA GCATCCATGT CACGTAAGGG CAACAGCCAA GACAACGGTA	240
GGATGGAATC TTTCTTTGGC ATTTTAAAT CCGAAATGTT TTATGGCTAT GAGAAAACAT	300
TTAAATCACT TAACCAATTG GAACAAGCCA TTATAGACTA TATTGATTAT TACAACAATA	360
AGAAAATTAA GATAAACTA AAAGGACTTA GTCCTGTGCA GTACAGAACT AAATCCTTTG	420
GATAAATTAT TTGTCTAACT GTTTGGGGGC AGTACACAAG AAAGCGCTTT AAAACCAGTA	480

1116

GACCTTTTCA TAAGGTTTCGC TTGATGTACC AAGATGAGGC TGGTTTCGGT AGAATCAGTA	540
AACTGGGATC TTGTTGGTCT CCAATAGGAG TAGGTCCACA TGTCCATAGT CACTATATAC	600
GAGAAATTCG CTATTGTTAT GGAGCTGTTG ATGCCCATAC AGGCGAATCA TTTTCTTAA	660
TAGCTGGTGG ATGTAATACT GAGTGGATGA ACGCCTTTT AGAAGAGCTT TCACAAGCTT	720
ATCCAGATGA TTATCTTTTA CTCGTTATGG ACAATGCTAT ATGGCATAAA TCAAGTACCT	780
TAAAGATTCC GACTAATATT GGTTTTACCT TTATTCCTCC ATACACACCA GAGATGAACC	840
CATTGAACAA GTGTGGAAAG AGATTCGTAA ACGTGGATTT AAGAATAAAG CCTTTCGAAC	900
TTTGGAAGAT GTCATGAATC AACTCCAAGA TGTACATAAA GGATTGGAGA AGGAGGTGAT	960
AAAGTCCATC GTTAATCGGA GATGGACTAG AATGCTTTTT GAAAACAGAT GAGTATAAAA	1020
TTGAATTGCT TATAAAAAAG CTCATACAC TGGATGTGTA TAGAGCAATG GGGCTTTATT	1080
TGATATAGAG TTCTTGGTTT TTTAGGACAA TTTCTCGGAT ACTTGCAAAC TTTTAAAGTT	1140
TTTTGATTTC TTCTGGATGA GTGACGAGAG TGATAACATA ACCTTCCTTG CCCATACGAC	1200
CAGTACGGCC AGCACGGTGT GTGTAGGTTT CGCTATCTCT AGGAATATCA AAGTTTACGA	1260
CACATTCTAG GCTATCGATA TCAATTCCAC GAGCCAAAAG GTCAGTTGCA AGAAGCAGGG	1320
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TAGCGAGGGA AACAGCCAAT ATATCAGGAT ACTGTAGTTT TTCCTCGGCA TTCCCAAGGT	1440
CTGACAGGCT ATTGAAGAAG ACTAGACCAC GGAAATCCTC TACATGAGCC AGTTTTCGTA	1500
GCATATCCAC TCGATGACGT TGGTCTACCT GCATGTAGAA ATGCTGGATA TTGTCCAATT	1560
TTTGATCAGA GAGATCAATA GTGCGTGAT TCGGCACAAT CTTTCTTGG TCAAACTTGG	1620
TCGTGGCACT CATGTAGACC AGTTGGTGGT CACGAGGTGC GTAGTGAGTG ATTTTTTCTA	1680
CAAAGTGAAT CTGAGAATCA TCTAGTAATT GGTCAAATC ATCCAGGATG ATGGTTTCCA	1740
CATTATCAT CTTGATTTTT TTAAGTTTAA TGAGTTCAA GATACGGCCA GGAGTTCCAA	1800
TCAGAATTC TGGCCCTTT TTAAGACGTT CAATTGTGCG TTTCTGACTT GAACCTGAAA	1860
GGAAGAGTTG AGCAGTCAAT CCGATAGCTT CTGCCACGT TTTACATAA TCAAAAATCT	1920
GTCCAGCAAG TTCCGTATTT GGTGCTAGAA TCAAGAGTTG TTGGGCTTTT TTCTTTTGTA	1980
GTCTGAGAAG ACTTGGTAGG AGATACGCTA GGGCTTACC AGTTCCGGTT TGGCTCACTC	2040
CTAGGAGGTT TTCTCCAGCA AGAAGGGGCT CAAATAGTTG AGTTTGAATG GGGGTGAATT	2100
CTTGAAACC GAGTTGGTCA CTCAGTTCTT GCCATTCACT CGGTAGTTTG GTTTTCATTT	2160
TTCTGCCTCA AATCTAATGC CAGCAGTCTG GCGCATGGTA TATAGTAGCT CATGAACAGA	2220
GCCTGCATCA TACAGCCAAG TTTGGTAGAG ATTCAGATCT GGTGCTGGA TCATGTGTGC	2280

1117

AAATGCAGCG ACTTCCTCAG TCATCGTATG AGGAGCCTGT TGGATAGGAA GCTGGACTTG	2340
ATTTCTCTGG TGGTCGGTAA AAATAGCTGA GCGAATATGC TCAATCGTGT TGAGAGTCAA	2400
GGTTCCATCT GTTGTATAAA TCTCGCAAGG AAGATTGGAA GTGATGTTTT TTCCAGCCTT	2460
GATGTGAACT TGATAGTCTG GGTAGAAGAG GATACCATCT CCATTTAGGT CAATGCTATT	2520
GTCAAGCTGT TGAGCATGGT AAGTCGCGTC ATTGGCTTTT CCAAAAAGAC GAACAGCAGC	2580
ATAGAGGGGA TAAATCCCCA AATCCATGAG GGCTCCACCA GCAAAACGGT CTGAAAAGAC	2640
ATTTGGTGTT TGTCCAGCCA ACAAGTCAGG CATCTTGGAA GAGTATTTGG CATAGTTGAA	2700
ATCTGCTCCT AACACTTGCT TATCTGCTAA AAAGTTTTTG ATAGTAGTAA AGGCTTTCTC	2760
GTGGTAATTA CGAGCTGCTT CAAAGATAAA ACAGTTATTT TTTTCAGCTG TTTGAATCAA	2820
ATCAAACCAT TCTTGTGGTT GAGAGACAGC TGGCTTTTCG AGAATAACAT GTTTACCAGC	2880
AGACAAGGCA GCTTTTGCCT GAGCAAAATG TAAGGAGTTT GGACTGGCGA TATAGACTAA	2940
ATCAAAAGAA GATTGAAGA AGACTTCTAA TTGATCGAAT AGTTGGATAT TCTGATAGCG	3000
AGAAGCAAAG GTTGCTGCAG TTTCTAGTTT TCTAGAATAG ATTGCGACCA GTTGGTATTC	3060
TCCACTGGTA TGGGCTGCTT CTATGAAATG ATGGCTGATA GCGCCAGTTC CGATGACACC	3120
TAATTTTAGC ATAAATACTC CTTTCCGAT TTAAATCCT TCTTTCATTA TAACATAGAT	3180
AGACGGGACT ATCCAACAGA GAGGAGAAAA TTTCAAATAA GCTATTAGCT TTCTTTCCG	3240
AATAAATAGA TAGAAGCATA GAATCTAGCA AACCTAGATT TAAAAATGTG CTATAATAGA	3300
AGGAGGAAAA GGAGGATTCT CAGACATCTA GGTATCAGCC CAACTAATGA TTTGTCAATT	3360
TATCCGCGAT ATGCTGGACT TGCCAGCAAA AAATGTGACG ATTTTGGAGG GAAGTAACAT	3420
TCACGTCTTG CTTTCCATGC CCTACTCAGC GTAAGATTTT TATACTAGTA TAGACGTCTT	3480
GGCGGAGTTA GATAATGGAA TCCAAGTTAT CATCGAAATT CAGGTTTCATC ATCAGAATTT	3540
TTTCATCAAT CGCCTATGGC CTTATCTGTG CAGTCAGGTT AATCAAAACC TAGAAAAAAT	3600
TCGCCAACGT GAAGGTGATA CCCACCAGAG CTACAAACAA ATCGCACTAG TATACGCTAT	3660
CGCAATTGTC GATAGTAATT ACTTCTCAGA TGACCTAGCT TTTCATAGTT TTATAGTAAA	3720
ATGAAATGAG AACAGGACAA ATCGATCAGG ACAGTCAAAT CGATTTCTAA CAATGTTTTA	3780
GAAGTATAGG TCTACTATTC TAGCTTCAAT CTACTIONAGAA TTCCATAGAT AGAAAACTAC	3840
ATAATCTCTA CAGATACGGA TGTTGGAGTT GATGTAAGAT GCTTTGGCTT GCTAGAGGAA	3900
TTGTGGATTG CCAAATTGTA TCATTGAAAT TATTGCTCAA ATTTGTTATG ATATAAATAT	3960
GAATAAAAGT AGACTAGGAC GTGGCAGACA CGGGAAAACG AGACATGTAT TATTGGCTTT	4020

1118

GATTGGTATT TTAGCAATTT CTATTTGCCT ATTAGGCGCA TTTATTGCTT TTAAGATCTA	4080
CCAGCAAAAA AGTTTTGAGC AAAAGATTGA ATCGCTCAAA AAAGAGAAAG ATGATCAATT	4140
GAGTGAGGGA AATCAGAAGG AGCATTTCG TCAGGGGCAA GCCGAAGTGA TTGCCTATTA	4200
TCCTCTCCAA GGGGAGAAAG TGATTTCCTC TGTTAGGGAG CTGATAAATC AAGATGTTAA	4260
GGACAAGCTA GAAAGTAAGG ACAATCTTGT TTTCTACTAT ACAGAGCAAG AAGAGTCAGG	4320
TTTAAAGGGA GTCGTTAATC GTAATGTGAC CAAACAAATC TATGATTTAG TTGCTTTTAA	4380
GATTGAAGAG ACTGAAAAGA CCAGTCTAGG AAAGGTTTAC TTAACAGAAG ATGGGCAACC	4440
TTTTTACACTT GACCAACTGT TTTGAGATGC TAGTAAGGCT AAGGAACAGC TGATAAAAGA	4500
GTTGACCTCC TTCATAGAGG ATAAAAAAT AGAGCAAGAC CAGAGTGAGC AGATTCTAAA	4560
AAACTTCTCT GACCAAGACT TGTCTGCATG GAATTTTGAT TACAAGGATA GTCAGATTAT	4620
CCTTTATCCA AGTCCTGTGG TTGAAAATTT AGAAGAGATA GCCTTGCCAG TATCTGCTTT	4680
CTTTGATGTT ATCCAATCTT CGTACTTACT CGAAAAAGAT GCGGCCTTGT ACCAATCTTA	4740
CTTTGATAAG AAACATCAAA AAGTTGTCGC TCTAACCTTT GATGATGGTC CAAATCCAGC	4800
AACGACCCCG CAGGTATTAG AGACCCTAGC TAAATATGAT ATTACAAGCG GGGT	4854

(2) INFORMATION FOR SEQ ID NO: 179:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2186 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 179:

TAAACAGGTG TTAGGTGCTC TAACTATTA AAATTCTAAG GAAATAAGGC TACTTTTCT	60
GGGTCTTGTT CATAGTAGGT GTGGTTCTTT TTTTCGAGTG TAGCCCATAG CTTTGAGCGC	120
ATAGTGGATG GTAGTTGGAT GACAGCCAAA TTCAGAAGCT ATTTGAGTCA AATAAGCATC	180
TGGATTGTCA GTAAGATAGT TTTTAAGTCT ATCTCTATCA ACTTTTCTTG GTTTTGTTCC	240
TTTTACTTGG TGGTTTAGCT CTCCTGTTTT CTCTTTTAGC TTTAACCAGC CATAAATGGT	300
ATTACGTGAG ATTTGAAAA CGTGTGATGC TTCTGTTATA CTACCTGTTT GCTCACAATA	360
AGAGAGAACT TTTTACGAA AATCTATTGA ATATGCCATA AGAAGATTAT ACCACATTGT	420
GTAATATTTT TGGTTTATTT TACTATATTT CTAAACACTT AGAAATAATA AAACAAATTA	480
AATATTATTT CTAAATATTT GAAAATAACA TCTATTTGTA TTATACTATC TTTGAGGTAA	540
CTATTATGAA CTATATCAAA AGACCACATT ATTTAGATTT TTTAAGAAAA CATCGTGACC	600

1119

GACCAATCAT CAAAGTTGTG AGTGGAGTTA GACGAGCTGG TAAATCTGTG CTTTTTCAAC	660
TCTATAAAGA GGAGTTACTA GCAACTGGGG TAGACGAGGA TCAGATTATA TTCATCAATT	720
TCGAAGATTT GAGTTACTAT GATCTGCGAC ATTTTCAAAC ATTATTGCT TATATAAAAG	780
ATCAATTAGT TAGCAAGAAA ACATACTATA TCTTTTTAGA TGAAATTCAA TATGTTGAAA	840
AATTTGAACT GGTAGCAGAT AGTCTATTCA TCTTAGCAAA TGTAGACCTC TATTTGACTG	900
GATCTAACGC CTACTTTATG AGTAGCCAAT TAGCAACAAA CTGACTGGT CGGTATGTTG	960
AGATAGAGGT TCTTCCTTTG TCATTTGAAG AATATCTATC AGGTCAATCT CTCACAGAGA	1020
ATCTGAATAC AACAGAAATT TTTAACAATT ATCTCTTTAG TGCTTTCCT TACTTATTGC	1080
AAACATCATC TTACGATGAA AAAATTGACT ATCTCAGAGG AATATATAAC TCCATACTGT	1140
TAAATGATAT TGCTACTAGA TTGGGAAAAC CAAATCCTAC TATTATTGAG CGCATTGTCC	1200
GAACCCCTCT CAGTAGTACA GGTAGCTTAA TATCAACAAA TAAGATTGCGC AATACCCTAG	1260
TCAGCCAAAA TGTTTCAATA TCCCATAATA CTTTGGAAAA TTATTTGACA ACTTTGACAG	1320
ATAGTTTACT TTTTATTCC GTTCCACGTT TTGATGTAAA AGGTAGAGCA TTATTGCAAC	1380
GTTTAGAAAA ATATTATCCC GTTGATTTAG GTTTACGACA TCTCTTATTA CCAGACCAGA	1440
AAGAAGACAT TAGGCATATC TTGGAAAATA TGGTATATTT GGAATTGAGA CGTAGATATT	1500
CACAAGTATA TGTTGGTAAT TTAGATAAGT ATGAGGTTGA TTTTGTGTT GTAACGTATC	1560
TTGGCCACTA CGCTTATTAT CAGGTCAGTG AAACAACACT TGCTCCAGAA AACTAGAAA	1620
GAGAACTTAG ACCACTAGAA GCCATTAAAG ATCAATTCCC TAAATATCTA TTAACAATGG	1680
ATACGATTCA GCCAACAGCC AATTACAATG GAATCGAGAA GAAAAGCATT ATAGATTGGT	1740
TACTAGAAAA ATAGATAAAT ATAAATCATA CAGCTAATTA GATTTGCAAC AGTCTGTTAT	1800
CAATGATTCT ACCCAAATCC TAACAAGATA TAGTGAATTT CGAATACGCT ATATAATACG	1860
GACACTTGAA AATAGAAATT GGGGATGAAA GGGGATCTAT AATTCTGGA AGTACTATCA	1920
AAAATTAATA TCATAGTCTT ATTAGAGAAT AGCATCACCC ACTTCTCAA ATAAGATTAA	1980
ATTGTAAC TG AATTATAATG AAAAAGAGAC TGAGCAATCA GTCTTTAAAA TCAGAAAAGC	2040
GCATAGTATC AGGTATTGAA CAACCTTGAT AATATGCGTT TTATTATGGA AATATTTGCT	2100
TCATTTTCTC CTGAAATAGA GCTTTTGCTA TCCTATTTTT CTCTATTTCT AATGATTAC	2160
TTCAACTTCT TACCTCTTGG GAAAAA	2186

(2) INFORMATION FOR SEQ ID NO: 180:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3236 base pairs

(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

GTACACCGTT	TGACTTCACG	TATTTTCATAA	GTATAAACTT	TATTTTATC	GGTTAGATAA	60
ATCTTCATGC	CATTTTTAGC	ATTATCTAAA	GGAGAAAATA	ACATTTTATT	AGCATTATCA	120
ACACCAAAGA	TATGGTGACT	AGCTAGACTA	TAATTTCCCT	CTCCATTAC	TTGCTCGCGT	180
TTCATTGTAC	CAGCTCCGTA	GAAGAGATTA	ACATTATCAA	GTCCTTTAAA	AATCGGCAAA	240
TTCATTTCCA	ATTCAGGAAT	TGCAATTCCC	CCAATAACTG	GTAATTTTGT	AGCATCCCAT	300
TGAGAAGTTA	GAACAGCTTC	CGAAGAGATA	GCTTTGACAG	AATCAAAGTC	AAAATTGCCT	360
TCTGTATCCT	GATTTTCTTC	TAATTTTCTT	TTTGATACCT	GGCTAACTTG	ATACTTATTG	420
GTATTCCAGA	CTATGAAAAT	ATTTCGAATT	TGAGTATTAA	AAATCAAAGC	CAGTGACAGT	480
AATATCAGAA	ATCCTGCTAG	GATATTTGTC	AGCAGATTTT	TTGCTTGTG	TTTCTTTTTA	540
TTATTTMTTT	GAGACATTAT	GCTTCACCTT	CTGTTTCGTT	TTCTGTCCCA	ACTTCTTCTT	600
TTTCTGCCAC	CGCAACCGTT	GTGAAAGTCA	CTATCTGAGC	ATCTTGATCC	AGGCGCATT	660
CTTTAACTCC	CATAGTTGCA	CGTCTGTTT	GTGAAATATT	GGCAAGATTG	GTTCGAATCA	720
TGACA <sup>~</sup> CTGT	ATCAGTGATA	ATCATCAAAT	CCTCATCCCC	TTGAACAGTC	ATAAGACCGG	780
CCAGCAAGCC	ATTTTTTTCG	GTAATTTTAG	CTGTCTGCAT	TCCCTTACCA	CCACGACCTT	840
TTGTTGGGTA	TTCAGTAGCG	ACTGTACGCT	TACCATATCC	TTTTTCTGTG	ATAATAAGAA	900
CCTCATCTTG	ATCAGTAATC	AAGCTGGCAC	CAACAACTGT	GTCTCCTTCA	CGAAGGTTAA	960
CACCTTTCAC	ACCAGTGGCG	ATACGGCTCA	TACCACGAAC	GGCTGATTGA	TTAAAGCGAA	1020
CTGCATAACC	AAACTTGGTA	CCAATGATAA	TATCCATATC	TCCTTCTGCC	AACAAGACAT	1080
TGATTAACTC	ATCTTCATCC	TTTAAATTCA	GCGCTTTGAG	ACCATTTTGA	CGAATATTGG	1140
CAAACCTCCT	AACACTGGTT	CTCTTCACAA	TACCGTGACG	GGTTGTAAAG	AAGAGATAAG	1200
CATCATCACT	GCGATCAGAC	TCAACATTGA	TAACCGTCTG	AATACTTTCG	TCTTCATCCA	1260
ATTTCAAGAG	ATTGACTACT	GGTAGCCCTT	TGGCAGTCCG	ACCATACTCA	GGAATTTTCA	1320
AACCTTTAAG	ACGATAGACA	CGTCCCTTGT	TTGTGAAGAA	GAGCAGATGA	TCATGGGTGC	1380
TAGTTGACAC	TAACTCACGA	ACAAAGTCAT	CATCTTTCAC	TCCCGTTCCT	TGGACACCAC	1440
GACCCCCACG	TTTTTGAGCA	GTGAACTCGT	CCTGATCCAA	ACGCTTAATG	TAGCCTCTGT	1500
TAGAAAGGGT	AATCAAGACA	TCCGATTCTT	CAATCAAGTC	CTCATCCTCG	AGACTCAAGA	1560



1121

CCTGTCCAAT CATCAACTCT GTACGGCGCT TATCAGAAAA TTTACGTTTA ACTTCATCCA	1620
ATTCGTCTTT GATAATTTGA GAAACACGTT CAGGCTTAGC AAGAATATCT GCTAAATCCG	1680
CAATCAGAGC CAAGAGGTCA TCATACTCAG ATTGAATCTT ATCGCGTTCC AAACCTGTCA	1740
AACGACGAAG ACGCATATCA AGGATAGCTT GACTTTGACG TTCAGAAAGC TTAAACTTGC	1800
TCATCAACTC AGCTTGAGCT TCCGCATCGG CTTCAGTAGC ACGGATGATA CGAATCAyTC	1860
GTCGATATGG TCTAGCGCAA TCAAGAGACC TTCTAAGATA TGAGCGCGCG CTTCGGCTTT	1920
TTCTTATCA AAACGTGTAC GACGAACAAC CACTTCTTTT TGGTGCTCGA TATAAGCATC	1980
CAAAATCTGA CGAAGAGACA AAATTTTCGG TATACCATTT TGGATAGCGA GCATATTGAA	2040
ACCAAAATTG GTTTCATTT GGGTCATTTT GAAGAGGTTA TTGAGAATAA CATTGGCTGA	2100
GGCGTCGCGC TTGACTTCAA TAACAAATCG AACACCTTCA CGGTTTGA CTACACGTAC	2160
TGCTGTGATA CCTCAATGC GTTTTCCTG AACCAAGCGA ACAATATGCT CATGCACCTT	2220
GGTTTTATTG ACCATGTAAG GAAATCTGT TACAACGATA CGCTCAGCAG CAGTCTTAGT	2280
CGTTTCAATC TCTGTACGAG AACGTAGGAC AATCGAACCT TTACCTGTTT CATAAGCCTT	2340
ATGGATACCT GATTTCCCA TGACAAGAGC ACCAGTTGGA AAATCTGGTC CAGGCAAGAC	2400
TTCCATCAAG TCCTTGGTAG TCACTTCAGG ATTATCCATG ACCAACTTCA CTGCATCAAT	2460
GTGTTTACCC AGATTATGAG GTGGAATATT GGTGCCATC CCAACCGCGA TACCAGTTGC	2520
TCCATTAACC AAAAGGTTT GAAAACGCGC TGGCAAGACC AAGGGTTCCC GTTCATTGGC	2580
ATCATAGTTA TCAACGAAAT CAACTGTATT TTTGTTGATA TCACGAAGCA TTTCCAGAGC	2640
AATCTTGCTC ATACGTGCCT CGGTATAACG TTGAGCGGCA GCACTATCTC CATCCATGGA	2700
ACCAAAATTC CCATGACCAT CTACAAGCAT GTAACGGTAG CTCCACCATT GAGCCATACG	2760
GACCATGGCT TCATAAATAG AGGAATCCCC GTGTGGGTGA TATTTACCCA TGACATCCCC	2820
TGTAATACGA GCAGATTTTT TATGGGGTTT GTCTGGGGTC ACACCCAATT CATTCAATTC	2880
GTAGAGAATG CGACGGTGAA CAGGTTTTAA GCCATCTCGA ACATCAGGAA GAGCTCGCGC	2940
TACGATAACA CTCATGGCGT AGTCGATAAA ACTTGCCTTC ATCTCCTTG TCAGATTGAC	3000
ATTCATAAA TTTTATCCT GCATTAATAA ATGCCTCATT TCACAATTAG TAAGTAACAA	3060
CATTATACCA TAAATTTCCA TCTATTTTCT CCTCTAAACC ACTAAAACGT TTACATCGAG	3120
AACTATAAGG CATATTCGTG ACAAAGTTTT TTTAAAGTGA TACAATGAAG TTGTCTAGGG	3180
AAAACCCCTA ATAGAATAAG GAGATGGTTA TACAATGACT CTGACTAACA CACAAA	3236

(2) INFORMATION FOR SEQ ID NO: 181:

1122

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 8651 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 181:

AGGTCCTGAA GTATTGGAAC AGGAAGGTCA AGAGTTTTTG GAACATTTCA AAAA	60
CTCTT CAGTT GAAGTAGTAG CCATCTCAGG TAGTCTGCCA GCTGGCCTTC CAGTTGATTA	120
CTATGCGAGC TTGGTAGAAC TTGCTAATCA AGCTGGCAAG CATGTAGTCT TGGACTGCTC	180
AGGTGCAGCA CTTCAGGCTG TTCTTGAATC ACCCCATAAA CCAACAGTCA TCAAACCAAA	240
TAATGAAGAA TTGTCTCAGC TTCTTGAAG AGAAGTTTCT GAGGATTTGG ATGAATTAAA	300
AGAAGTACTT CAAGAACCTT TGTTTGCAGG GATTGAATGG ATTATCGTTT CACTTGGTGC	360
CAACGGTACT TTTGCCAAAC ATGGTGACAC TTCTACAAG GTAGATATTC CTAGAATTCA	420
GGTGGTAAAT CCTGTTGGAT CTGGAGACTC TACTGTGGCA GGAATTTCTT CAGGACTTCT	480
TCACAAAGAA TCGGATGCAG AATTACTCAT CAAGGCAAAT GTCCTTGGTA TGCTCAATGC	540
TCAAGAAAAA ATGACTGGTC ATGTCAACAT GGCCAACTAT CAAGCTCTAT ATGATCAATT	600
AATAGTAAAA GAGGTATAAA ATGGCTTTAA CAGAACAAAA ACGTGACGC TTAGAAAAAC	660
TTTCTGATGA AAATGGTATC ATCTCAGCTC TTGCATTGA CCAACGTGGT GCTTTGAAAC	720
GCCTCATGGT TAAACACCAA ACAGAAGAAC CAACTGTGGC CCAAATGGAA GAACTTAAAG	780
TCTTGGTAGC AGATGAATTG ACTAAATATG CTTTCTCTAT GCTTCTTGAC CCGAGTATG	840
GACTTCCAGC AACTAAAGCT CTTGATGAAA AAGCTGGTCT TCTCCTTGCT TATGAAAAAA	900
CAGGTTATGA CACAACAAGC AAAAAACGCT TGCCAGACTG CTTGGATGTT TGGTCTGCAA	960
AACGTATTAA AGAAGAAGGT GCAGATGCAG TTAAATTCTT GCTTTACTAT GATGTAGATA	1020
GCTCAGACGA ACTCAATCAA GAAAAACAAG CCTACATCGA ACGCATCGGT TCTGAGTG/G	1080
TGGCTGAAGA TATCCCATTG TTCCTTGAAA TCCTTGCTTA CGATGAAAAA ATTGCGGATG	1140
CAGGTTCTGT AGAATACGCT AAAGTAAAC CACACAAAGT TATCGGCGCT ATGAAAGTCT	1200
TTTCAGACCC ACGCTTTAAC ATTGATGTTT TGAAAGTTGA AGTTCTCTGT AACATTAAAT	1260
ATGTTGAAGC KTCGCTGAAG GTGAAGTACT TTATACAGT GAAGAAGCAG CAGCCTTCTT	1320
CAAAGCGCAA GATGAAGCAA CGAACTTGCC ATACATCTAC TTGAGTGCTG GTGTATCAGC	1380
TAAACTCTTC CAAGATACTC TTGATTTTGC TCATGAATCA GGTGCGAACT TTAACGGAGT	1440
TCTTTGTGGC CGTGCTACAT GGGCAGGATC AGTTGAAGCT TACATCAAAG ATGGTGAAGC	1500

1123

AGCAGCTCGC GAATGGCCGC ACAACTGGAT TTGAAAACAT TGACGAACTC AACAAAGTTC	1560
TTCAAAGAAC AGCAACTTCA TGGAAAGAAC GCGTGTAAAG AAGTCCTCCT AGTTTAGGAA	1620
CATGAATCTA AAAAAATTTA AAAAAAGTTG TATGTAAAGG CTTACAAAAT AACTTACTTG	1680
TGCTATACTT AAATCACAAG TTAATATGAA TTAGAAAGTA ACTATATGAA GTATAATAAA	1740
AATAGGATAT AGTTTATTTT ACGAGCTAGG AAGGAAAAAT ACGGAAACAA TATTGCCAGA	1800
ATAAACTATA TTTAGATGCA CATTTTCATT ATTGTTTTAT AAAAGGAGAA GATAAACGGC	1860
TACTAAAAAG AGTTTTAAAG CGTTAGTTGT AGGACTAGGT ATTGTTTCAA TATTCTTATC	1920
AGCCTTACCT ATGGTTAGTG GTTCTGTATT TGCAGATAGT GCCCTAACTA CAGTAGATAA	1980
AGCAAATGAT ATTGTTTTGA ATGTTGATGG GAATAAATTT TATAATGTTT CGGTTTCAGA	2040
AGATATTGTA AATGCTGGTC AAATTTTGGG AGATTATTTT TATGTAGATA AATTTGGAAA	2100
TATAAATTTA AAAGGCACTC CTGAAGAGTT AGCAAAAAAT ATTGGTATTT CTGTACAAGA	2160
AGCAAGTTTG ATGTATGGAG CTGTAAAAGA GTTACCCAAC GTTTACGAAA GAGGTCCTGT	2220
AGGTTTTCGT TTCAATCTTG GTCCTCAAGT GAGGGGGATG GGTGGCTGGG CTGCTGGAGC	2280
TTTCGCTACT GGATATGCTG GATGGCATTT GAAACAATTT GCGGTTAATC CTGTTACATC	2340
TGGATTTGTT GCTGTAATAA GTGGTGCGAT TGGCTGGGCT GTAAAACTG CTGTAGAAAA	2400
TTATTGGACA GTTGCTGTAG CTACAGTAGA AGTGCCGTTT GTGAACCTTG TTTACACCAT	2460
AGATTTACCT TAGAGGTTAT TTCTTTATGA ATCATTCTTT TAAAAAATA ACTGTATTTT	2520
GTTTTATAGT TTCTTGTTT CTMTGTTTAT TAGACTTAAT GAATTTTAAA AATGTAGCTA	2580
CTTTTTTATT TTTCTGTCTT CCTGTTTTTG TTTTGATTTA CAAAAATAAA TAAAAACAGA	2640
GCCTCTGTTT GATGAATTTT AGAACATAGT TAAGTTTTAA AAAAAGTTGT ATGTAAAGGT	2700
TTACAAAATA ACTTACTTGT GCTATACTTA AATCACAAGT TAATACAAGG TGAGTGTTAC	2760
TAAGTAATAT TAGGCATGAT CACAGGTGAA TTAGAAATCA GCTGATTTTC TAGTTCATTT	2820
GTGGTCATTT TTTGTACTTA TATACCTTTA AGATATAAAA GGAGGTTGAC ATGTATCGAA	2880
TTCTAAATCC AATGAATCAC AATGTCTCGC TTGTCAGAAA TGATAAGGGA GAAGAGGTGA	2940
TTGTAATTGG TAAGGGAATT GCATTGCGAA AGAAGAAGGG GGATTTGATT GCTGAAAATC	3000
AGGTTGAGAA AATCTTTCGG ATGAAGACCG AAGAGTCCAG AGAAAACTTT ATGGCTCTTC	3060
TCAAAGATGT TCCGCTTGAT TTTATCACAG TGACCTATGA AATCATTGAT AAGCTATCAA	3120
AGAAATATCA TTATCCGATT CAAGAGTATC TCTATGTAAC CTTGACAGAT CATATTTACT	3180
GTTCCTATCA AGCTCTAACT CAAGGAAGGT ACAAGGATAG TAATCTGCCA GATATTTCCG	3240

1124

CTAAGTATCC TGTGCTTTT CAAATCGCAA ATGAAGCTTT TGAAATTAC CGTCAGAAGC	3300
TAGCAGATCA TTTTCCTGAG GACGAAATTA TTCGGATTGC TTATCATTTT ATTAATGCTG	3360
AAGGTGAAAA TGAAGTGGA CTGTGGAGT CGATTGATAA GAGGAAAGAA ATTCTCAGGA	3420
ATGTTGAAGA AGTTTAAACG GACTATGCAA TTCAACGAAC TAAAAAGAAT AACCATTCTT	3480
ATGATCGCTT TATGATCCAT TTGAATTATT TCTTGGATTA TTTAGACAGA TCTAGAGATG	3540
ATAACCAATC ACTTCTGGAT ATGGAAGATC ATATTAAACA ATCCTATCCA AAAGCCTTCG	3600
AGATTGGTTC CAAGATCTAT GATGTGATTA CGCAACATAC GGGTCTTGAT TTGTATAAAA	3660
GTGAACGAGT TTATCTAGTT CTACATATCC AACGTTTATT GTCATAAAAA TTTATTTAAA	3720
ACTATATAAG GAGAATTCTA TCATGAATAG AGAAGAAGTA ACATTGTTAG GTTTTGAAAT	3780
CGTAGCCTAT GCTGGCGATG CTCGTTCAA ACTATTGGAA GCCTTGAAGG CTGCTGAAGC	3840
TGGTGATTTT GAAAAAGCGG ACGCTCTGGT AGAGGAAGCT GGTAGCTGTA TTGCAGAGGC	3900
TCACCACGCG CAAACAAGTC TATTGACTAA GGAAGCTTCA GGTGAGGACT TGGCTTATAG	3960
TGTAACCATG ATGCATGGCC AAGACCACTT AATGACAACT ATCTTGTTAA AAGATTTGAT	4020
GCATCATTTA ATTGAACCTT ACAAGAGAGG AGTTCAATAA TGAATAAACT AATTGCATTT	4080
ATCGAGAAAG GAAAGCCTTT CTTTGAAAA CTATCTCGTA ATATCTATCT TCGTGCTATT	4140
CGTGATGGTT TCATTGCAGG TATGCCTGTT ATTCTCTTCT CAAGTATCTT TATCTTGATT	4200
GCCTTTGTAC CAACTCATG GGGCTTTAAA TGGTCTGATG AAGTTGTAGC CTTTCTGATG	4260
AAACCTTATA GCTATTCTAT GGGTATTCTG GCTCTCTTGG TAGCTGGTAC AACAGCTAAG	4320
TCATTGACTG ACTCAGTAAA CCGGAGCATG GAAAAACCA ATCAAATCAA GTATATGTCA	4380
ACATTGTTGG CAGCAATTGT TGGTTTGTG ATGTTGGCAG CTGATCCTAT CGAAAGTGGT	4440
CTAGCTACTG GATTCTTGGG GACAAAAGGT TTGCTTTCAG CCTTCCTTGC TGCCTTTGTT	4500
ACTGTAGCCA TCTATAAGGT TTGTGTTAAG AACACGTCA CTATTCGTAT GCCTGACGAA	4560
GTCCACCAA ATATCTCACA AGTCTTTAAA GATGTGATTC CATTCACTCT ATCTGTTGTT	4620
TCTCTTTATG CTCTTGACTT ATTAGCACGT TATTTTGTG GTTCTAGTGT GGCAGAATCA	4680
ATCGGTAAAT TCTTCGCACC ACTCTTCTCA GCAGCAGACG GATACCTTGG TATTACCATT	4740
ATCTTTGGTG CCTTGCCTT CTCTCGGTTT GTTGGGATTC ATGGTCCATC TATCGTTGAA	4800
CCAGCTATCG CAGCTATTAC CTATGCCAAT GCCGAAGTTA ACTTGAACCT TCTCCAACAA	4860
GGGATGCATG CAGACAAGAT TCTTACTTCT GGTACACAAA TGTATTATCGT TACCATGGGT	4920
GGTACAGGTG CGACATTGGT CGTTCCATTT ATGTTTATGT GGTGACAAA ATCGAAACGT	4980
AACCGTGCAA TCGGACGTGC TTCAGTAGTT CCTACCTTCT TCGGTGTAAA TGAACCAATC	5040

1125

TTGTTTGGTG CACCTCTTGT TTTGAATCCA ATCTTCTTCA TTCCATTTAT CTTTGCTCCA	5100
ATTGCAAACG TATGGATTTT CAAATTCTTT ATTGAACTC TTGGAATGAA CTCATTCACT	5160
GCTAATCTAC CATGGACAAC TCCAGCTCCA CTAGGTCTAG TTCTTGAAC TAACTTCCAA	5220
GTGCTATCAT TCATTCTTGC TGCCCTTCTA ATCGTGGTTG ACGTTGTCAT TTACTATCCA	5280
TTCTTAAGG TCTATGATGA ACAAATTCTT GAAGAAGAAC GTTCAGGTAA GTCTAATGAT	5340
GAATTGAAAG AAAAAGTTGC TGCAAACCTC AACACTGCAA AAGCGGATGC TATTCTTGAA	5400
AAAGCGGGTG TCGATGCAGC ACAAATACC ATCACTGAAG AAACAAATGT CCTCGTTCTC	5460
TGTGCAGGTG GAGGAACAAG TGGTCTCCTT GCAATGCTT TGAATAAGGC AGCAGCAGAA	5520
TACAATGTCC CTGTGAAAGC AGCAGCAGGC GGCTATGGTG CTCACCGTGA AATGTTACCA	5580
GAGTTTGATC TTGTTATCCT TGCCCTCAA GTTGCTTCAA ACTTTGAAGA TATGAAAGCA	5640
GAAACAGATA AGCTCGGTAT TAACTAGCG AAAACAGAAG GCGCTCAATA CATCAAATTA	5700
ACTCGTGATG GAAAAGGTGC TCTTGCAATC GTACAAGCGC AATTCGATTA AGGCTAGAGA	5760
CTCTGAAATA GTCTCCCATC GTTACGGAAA TCGCTATGGC GAATTTCTTA TTATTAATTC	5820
GTCGGTAAAA AGATATCGTT TTTACCTCCT CATGTCACAA TTCGGTGAAT TGGTACAAGA	5880
AGTGAGATGG AGAAGGATGG CTCACTGACT CCTCTCCTCT CACTTTTACT TTATTTAAAT	5940
CAAGAAATAG GTGAAAAAAA TGACAAAAAC ACTTCCAAAA GACTTTATTT TTGGTGGCGC	6000
AACAGCTGCT TATCAAGCAG AAGGTGCTAC ACATACTGAT GGAAAAGGAC CAGTTGCTTG	6060
GGATAAATAT CTTGAGGATA ACTACTGGTA CACTGCCGAA CCAGCTAGTG ATTTTACAA	6120
TCGATATCCA GTTGACCTCA AGCTAGCAGA AGAGTATGGT GTCAATGGTA TTCCAATTC	6180
TATTGCTTGG TCACGTATTT TCCCGACTGG TTACGGCCAA GTAAATGCTA AAGGTGTTGA	6240
GTTTTATCAT AATTTATTTG CAGAGTGTC AAAACGTCAT GTTGAGCCTT TTGTAACCTC	6300
TCATCACTTT GACACGCCAG AAGCTCTCCA CTCAAATGGA GACTTCTTAA ACCGTGAAAA	6360
TATCGAACAT TTTGTAGACT ACGCTGCCTT CTGTTTTGAA GAATTTCCAG AAGTAAACTA	6420
TTGGACAACC TTTAATGAAA TTGGACCAAT CGGTGATGGT CAATATTTGG TTGGGAAATT	6480
CCCTCCAGGT ATCCAGTACG ACCTTGCCAA AGTCTTTCAA TCACACCACA ATATGATGGT	6540
GTCTCATGCA CGCGCGGTAA AATTGTACAA AGAGAAAGGC TATAAAGGGG AAATTGGTGT	6600
TGTTACGCCC CTGCCAACTA AATATCCTCT AGATCCTGAA AATCCAGCAG ATGTTCTGTC	6660
AGCTGAGTTG GAAGATATCA TCCACAATAA ATTCACTTTA GACGCAACTT ATCTAGGTGC	6720
CTATTCAGCT GAAACCATGG AAGGTGTCAA CCATATCTTA TTAGTCAATG GTGGTAGTTT	6780

1126

GGATCTTCGT	GAAGAAGATT	TTACAGCATT	AGAAGCTGCA	AAAGACTTGA	ATGATTTTCCT	6840
AGGAATCAAC	TACTATATGA	GTGACTGGAT	GGAAGCCTTT	GATGGAGAAA	CTGAAATTAT	6900
CCATAATGGT	AAAGGTGAAA	AAGGAAGCTC	TAAGTATCAA	ATCAAAGGTG	TTGGTCGTCG	6960
TGTAGCTCCT	GACTATGTAC	CACGCACGGA	TTGGGATTGG	ATTATCTACC	CTCAAGGTTT	7020
GTATGACCAA	ATCATGCCGTG	TGAAGAAAGA	TTATCCTAAC	TACAAGAAGA	TTTACATCAC	7080
TGAAAATGGT	CTCGGCTATA	AAGATGAGTT	CGTTGATAAC	ACTGTTTACG	ATGATGGTCG	7140
TATTGATTAC	GTGAAGCAAC	ACTTGGAGGT	TTTATCTGAT	GCGATTGCAG	ATGGAGCTAA	7200
TGTAAAAGGT	TACTTCATTT	GGTCATTAAT	GGATGTCTTC	TCATGGTCAA	ACGGTTATGA	7260
GAAACGTTAT	GGTCTCTTCT	ACGTAGATTT	TGAAACTCAA	GAACGTTATC	CTAAGAAATC	7320
AGCTCACTGG	TACAAGAAAG	TAGCGGAAAC	TCAGATTATA	GACTAGTAGA	ATTAGTCATT	7380
AGATATAGAA	TTTTAGTGAG	TCAAAAAGAT	GTTCAAAGAT	TTTATCCAAT	CTATTTATGA	7440
AAAAAAGTTT	ATATTATAAA	TTTCGAAAAA	TGCTCTCAAA	TACCGTGTTT	GACGAGTGAA	7500
GAATTGAAAA	GTCTTGAAAA	ATGGTATGTC	TCGACTGGTA	AAGAATGGAT	TTGTCATTCA	7560
GATGATGAGC	TGGAAGAATT	TAAAAATCTA	TTTTTAAATT	TTATCAATCC	TGAAGAATGG	7620
GATACTATCT	CCTTTGATTC	AGATTTTATG	CCGTTTCAAC	AATCGTAACC	AATTTCTCAA	7680
AAAAGTTAAA	TCTTATATTT	AGTACTCTGT	AAAACCTCTA	TCTAATCAGG	TTGCTTATAC	7740
TCAATGAAAA	TCAAAGAGCA	ACTTTAAACT	AGGAAGCGAG	TCGCAGATTT	CTCAATGCAT	7800
AGCTTTGAGG	AATTGGGCAA	AAAGTCTTTG	ATATAGAAAA	ACGCATAGTA	TCAGGTGTTT	7860
CAACACCTGA	TACTATGCGT	TTTATGTGG	GAAGATTTAC	TTTTTTTCTT	CTGAAATTGA	7920
GTTGTTACCC	AGGCTCTTTC	AGTTTATTAA	GGCTTGATGA	CTTTAATGTG	TTTAGATAGC	7980
TTAAAAAGGA	TTGAATCACT	TAGTTTAGAA	TCTGAAACAA	TAGTATCAAG	ATTTGATACA	8040
TTATAAAAAG	TATAAAAATC	AAACTTATTG	AACTTGCTAT	GATCTGCGAG	TAAATATTTT	8100
TTATTAGAAT	TATTTAAAGC	GATGCGTTGA	GCCTCTCCCT	CTTCTCGCT	AAAAGTAGLT	8160
AGAGCTCCGT	TTGAATACC	ATTACAGCTA	ACGAAAGCTT	TAGAAAATTG	GAGATTAGAG	8220
AGATTTTGTA	GGGTCAATGT	ACCAACAAAA	GCACCTGTAA	TATCGCGATA	ATTTCCACCT	8280
ATTAAAAATCA	AATCTGTAA	TTTTCGTTCC	CTTAAAAATCA	GAAAAACAGG	TAGACTGTTG	8340
GTTACGACGC	GGATATTGTC	AATAGGCAAC	TCACGCGCAA	AAAACCTCTAA	TGTTGTTTCCT	8400
GGTCCAATGA	AAATAGTTTC	TCTTTCTTCT	ACTAGACTGC	CTGCAAAATG	GGCTATTTCT	8460
TGTTTTTCTG	CCGTTTGGAG	GGCTTGTTTT	TCAATATTTG	ATCGCTCATT	AGTCAAAAGG	8520
GAGTTGGTTC	GAAGTTTTTC	AGCTCCACCA	TGCACACGAA	TCAGCAAATC	TTTATCAGCT	8580

1127

AATTCCTGTA AATAGCCCT TGCAGTCATA TCTGAAACGG CTATTTCTGC CATAATCTGT 8640  
TTAACTGTTA T 8651

(2) INFORMATION FOR SEQ ID NO: 182:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3786 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 182:

AATCTCCAAT CAGTGCCACT TCAGCTACAA AGAAGAGGAG GATAATAACT CCGTTCACAA 60  
GGACAGACAA GAATAATTGA TAGAAGGAGT CGGTTTCACT TGCTTGACTT GGTCTTGTA 120  
TGATWTGGAG ACTGGCAAGC AGAATGATTC CAATGCTAAT CACACACAAG AGGGCTGTAA 180  
ATCGTAGGCT ATCAAAGAAA GCAAAGAAAC TAGCAATAGC AGTGAGGAGG ATTGGAATTG 240  
CCAAGAGTTG ACTATATTGT TGGAGAACCT TGTCTAGCGT CCAGTCCTTT TCCTGGTGGA 300  
TAAATCGTCT CACAACGAAA CTACCCAAGA GGAATGAAAA GAAGAAGACT GTTGTGCTA 360  
CTAGGATAGA GATGATAGAA AAAAGAGTTA AAGGAGCTAG CTGCTCAGGG AAGCGACTGT 420  
TAATGCTTGC TATATGTCCA TAGTAAGCAT GTTTGATGTG ATAGATACTA AAGAAAAAGG 480  
AAGATGCAGA AAACAGAAATG AGCAAGAGAA AGGCTGTGTA ACTGTGTGTG AACTTGTGTT 540  
CCAACCTACT TGTAGGAGAT TTGATCGCTT CCACTAGCCA AGACCAAAAA TCAAGCACTT 600  
GCTCTTTCCA TTTATCCCTA GATTTTGGAG CTTGGTCCGG GATATAAGGA CTTTCTAAAG 660  
ATTTACTGAT AAGAAGTGGC TCTTTCGTGG TTGCTTTTTG CTGAGGAAGA GCTTCTTGGC 720  
TCTCTTCAGC TATAGTGAAT TTTTCTGTTT CTTTAGAAAG GTCTGGCTCT TCTTCAGTAG 780  
AATTAGATGC CTTCTTTTCT TCTATTTCTG TTCTCGCTTC ACTGTCTTCA GGAGCTTCAA 840  
TTTTCTCTTC TTGCTGGCTT TCCAATTCGA CTTGAGCTTG AGGGACTTCC TCCTCTAACT 900  
GAGTATTTTT TTCAATTGGT GTATCGAGAT CGGCTATCGT TTCTTCAGCC TTGCTGCAA 960  
CCTCTTGAGC TTGCTCTTCA GGCTTGTCTT TGCTTGTGT TTTTACAAAA TCATTACTTT 1020  
CAAACCATTC TTGTTTCATG GTAGAACCCT CTTTTTAGTT AGATAAATAT GTTTCCATAG 1080  
TAGCAAATGT AAGCGTTTTT GTCAACGTCT GCTTGGTGTG GATATTAGAT CAATATTATC 1140  
ATCAGATCTC GCAATGAGTT GATCCTTGAC ATCGGTTTTT TCAGTTTTGT AAGGGTTGCT 1200  
TAATCCGTA CCTCTTGATT CAGGCTTTTC TCTTGTGAAT TGGAAGATAG AACCATAGTT 1260

1128

GCTTGAGATG TCCCAGTTAA TTCGTTGGCT TTCTTTCTGG TCTAGGATGA TTCTGAGATA	1320
ATCTTTGGCA GTCAGTTCAA CCTTGCCATG GACTTGGATA TTTTCAGCGT GGAAGTGATT	1380
CTCTGTTGAC TCTAGCTGAC TATCTGTAAG AACTGTATCA AAGATATTAA CGATATTGGG	1440
CGTTGTGAGT TTA CTGTTTT TGATACGACT TCCTTCAATT CGGAGGATAT AGCTGTTTGT	1500
ATTGAGGGTC GCATTTTCAA GGCTAGCATT TATGATGGTG GTTTGTCCGC GATTGGCTGA	1560
GATGTTGATC CCTTTTAGAG TTCTCCCTTT TGGTAGTCGG AGAATAACTT CTTCAAAACG	1620
ACTAGAGTAG CTACTTGCGA TATGAAGAAT CCCACCAATT CCAGAAGAGA GAAACGGAGT	1680
TTCAGACAGT TTCTTATCAG TGAGACTCAG AGTTCTATCG TTCTGATTGG TGATAAGATC	1740
ATGGTGAGCA GAAAGAGATG GATGGTAAGA AATGTGGATT TGATCATCGA AAGAGTCTGT	1800
GATGGTGAGC GTGTGTTGGT GGAGAGTAAT TTCTAGGTTT TCGACTTCCT TGCCAAAGGT	1860
TAGCTTTTCC GTACGGCTAT CATAGACAGG TTCTTTGGAC ATGGAAAGTA GGCTCTTAA	1920
CCCGTCAGAT TGGATACCTA CAAAAAGCAG GATAAAGCCG ATAACGGTAG TCACCACACC	1980
AAAGATGAGA AATCCTTTTG TCCATTTACG CATGCTGATT ACCTCTCTTT CTTTTTTTAA	2040
GAACAAATTG TACCAGACGA ACAATGAGTA GACCGAAGAA GCGAGTTGCA TAGGAAATGC	2100
CAAGTAAAC TAGCGAAGAA GCACCGATAG CCAGTAAACC AGAACCAAAA ATCAAGATAA	2160
AGGCTGATTT GGCTTGGGCG AGGACAGTGA AACTTTCAAC TAAAAATAGG AATCCGCCGA	2220
TGATACCCAG TATGGAACT GCAAAGAAAG CCAGAATGAC AGTCAAAGCG GCTACAAGAA	2280
TTGCGAACAG GGTCACGAGG ATGGCGATTC CCAGAGGAAT GCCGATAGGT GCTGCAAGGA	2340
GGGCTAACAA GCGATATGT AAAATTTGTC GGTATTTTTT TTGAGCGGGT GCTTCATTGA	2400
TTTTTTTATC GAGAAGATTG GATAGAACTT CGTGGGCCGC TTCTTTGGGA GTTCCCAAAC	2460
TACCGATGAG TTCTTCTTCT CCTTCGACTC CAGCATCGTC AAAGAGCTCT CTGAAATAGT	2520
CCATGGCTTC GATACGGTCA GCTTCAGGTA GTTCTTTGAG ATAGAGTTCT AGCTGAGTCA	2580
GGTATTCACT TCTGTCTATG GCGGATACTC CCTTCTATGA TGCCATTGAT GGTGTCTGTA	2640
TAGAGTGCCC ATTCATCTTT TAGGGTCAAG AGCTGCTCTA TACCACCGTT TGTCAAGGAG	2700
TAGTATTTGC GCATGCGACC TTGGAATCT CTAGAATAGG TTGTCAGAAA GCTATTGCCT	2760
TCCAATTTTT TGAGAATGGG ATAGAGTGTG GATTCTTTGA TATTAGCGAT CAGCTTAATG	2820
GTTTGGCTAA TCTCATAACC ATAAGAATCA CCCTGCTCCA GTACAGCCAA GATGAGAAAT	2880
TCAATCAAGG CAGAGGATGT TGGAAAGTAC ATGGGAAACC TCCTTTTCTA ATGTGTAAGA	2940
TTTTTATATA TAATTTTTCT ACACATACAT TGTACATCTA AAAGAAAGCC CTGTCAAGAG	3000
AAATGTGTAA AATTTTTATA TATAAAAAAC TTCTAGCTAA AACTAGAAGT TTAAAGGATC	3060



1129

TTATCCGCTC TGTCCACTGT AAAGAGGGCC ACAGTCATCA GGATATCGAT GAGCAAGAGG	3120
GCAGCTACAG ATGGTACCCA AGAGTGGAAC AGGTCAAAAC TGTAACCAA GAGGGTTGGC	3180
CCAAAGGCTG CTAGGATATA GCCTCCTGTT TGAGATAGGC CGGACAATTG GGCTGTCTTT	3240
TCAGGGGCGC TTGTCTTGAG TGAAAAGTTG ACCATGAGAT AAGGGAAGAG GGCAGTGGTT	3300
GCGGTTCCGA TGAGGAGATG GATGGCAAGC CAGTAAATGA AATTATTGAT TGGGAAAAAG	3360
AGCATGGAAA TGCCGACCAC ACCAGCTAGT GAAACCAGAG TGAGCATGAG CTGACGGTTG	3420
CGAGTAGATA AACTGGTTGT CAGGCTTGGG ATGGTCATTG AAAAAGGAAT GCTAATCAGA	3480
GATAAGATAG AAGTCAGCAA GCCAGCTTCG TGAAGGATA GACCTGCATG GATAGACATG	3540
GTAGGTAACC AGGTCATGAC GGTGTAAAAG ATCAAGGATT GAAAACCTGA AAAGATAATA	3600
ATTGCCCAAA CCTGTTTATT ACGCATGACC TTTATTTGAC TTTTTTGT TTGTTTGTGA	3660
GCTAGTCTAT GATTATAGCG GTGATTTGGG AGCCAGACCA AAAAAGTTGC TAGACAGAGT	3720
AACGTGAGGA GAAGGATAAG TCCTTTCCAA GAACTGGCTT GTGTAATGGG CACAGCTAGA	3780
TAGGAA	3786

## (2) INFORMATION FOR SEQ ID NO: 183:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 3054 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 183:

TCAGCTAAAA AACATTGCTA AATTGATTGA AGCTGGTGCT ACACATTCCG ATTCAACTTC	60
TCACACGGCG ACCACCAAGA ACAAGGTGAG CGTATGGCAA CTGTTAAACT TGCGGAAAAA	120
ATTGCAGGTA AAAAAGTTGG TTTCTTCTT GATACAAAAG GACCTGAAAT CCGTACAGAA	180
TTGTTCGAAG GTGAAGCTAA AGAATATTCA TACAAAAC TGAAAAAAT TCGTGTGCA	240
ACTAAACAAG GAATCAAATC AACTCGTGAA GTGATTGCGT TGAACGTTGC TGGTGCTCTT	300
GATATCTATG ATGATGTTGA AGTTGGTCGT CAAGTTTGGG TTGACGATGG TAAACTTGGT	360
CTTCGTGTGG TTGCTAAAGA TGATGCAACT CGTGAATTG AAGTTGAAGT TGAAAACGAT	420
GGTATCATCG CTAACAAAAA AGGTGTGAAC ATCCCTAACA CTAAAATTCC TTTCCAGCT	480
CTTGCTGAAC GCGATAACGA CGATATCCGT TTCGGTCTTG AACAAAGTAT CAACTTCATC	540
GCAATTTTCAT TCGTACGTAC TGCAAAAGAT GTGAACGAAG TTCGTGCAAT CTGTGAAGAA	600

1130

ACTGGAACG GACATGTTCA ATTGTTGCT AAAATCGAAA ACCAACAAGG TATCGATAAC	660
TTAGATGAAA TCATCGAAGC AGCTGATGGT ATTATGATTG CTCGTGGTGA TATGGGTATC	720
GAAGTACCGT TCGAAATGGT TCCAGTTTAT CAAAAATGA TTATCAAGAA AGTCAATGCT	780
GCAGGTAAAG TTGTTATCAC TGCAACAAAC ATGCTTGAAA CAATGACTGA AAAACCACGT	840
GCAACTCGTT CAGAAGTATC AGATGTATTG AACGCTGTTA TCGACGGAAC TGACGCTACA	900
ATGTTGTCAG GCGAGTCTGC AAACGGTAAA TACCCACTCG AGTCAGTAAC TACAATGGCT	960
ACAATCGACA AGAACGCTCA AGCTCTTCTT AATGAATACG GACGCTTGA TTCAGATTCA	1020
TTTGAGCGTA ACTCTAAGAC AGAAGTAATG GCTTCTGCTG TTAAAGATGC TACTAGCTCA	1080
ATGGATATCA AATTGGTTGT AACTCTTACT AAGACAGGTC ATACTGCACG TTTGATTCTT	1140
AAATACCGTC CAAATGCTGA CATCTTAGCA TTGACATTG ACGAATTGAC AGAACGTGGC	1200
TTGATGTTGA ACTGGGGTGT TATCCCAATG TTGACAGATG CTCCATCTTC AACTGACGAT	1260
ATGTTGAAA TCGCTGAACG TAAAGCGGTA GAAGCAGGTC TCGTTGAGTC AGGCGATGAT	1320
ATCGTTATCG TTGCTGGTGT GCCAGTAGGA GAAGCTGTTG GCACAAACAC AATGCGTATC	1380
CGCACAGTAC GTTAAGAAAA ATATAAAAAC CTATCATATC CAGCTTTAGA GCTTGTGTGA	1440
TAGGCTTTTT GTATAGAGGG TAAGAAATAG GCAAACTTT CATAATGGAT TGATACTCTT	1500
CGAAAATCTC TTCAAACCAC GTCAGCGTCG CCTTACCGTA TATATGTTAC TgACTTCGTC	1560
AGTTCTATCT ACAACCTCAA AGCAGTGCTT TGAGCAACtG CGGCTAGCTT CCTAGTTTGC	1620
TCTTTGATTT TCATTGAGTA TGAAATAAGA TATGCACAAA TTGATTAGAA AGTCAAATGA	1680
ATTTCTACAA ATGTTTtagc AATCGTAATG TACTTGTCTA GATTCGATCT GATATATTTT	1740
CGATTTAATG ATATGGTATT TAAACCTCC AAAGTAGCTT ACTCCATTCT TTTACTTACG	1800
TGAGTGTAGA TGTTATTTAC TGTTTTAGCG TTTTGTGTT CCACTCTAAC CATTATAGCA	1860
TTCTTCTCAG CTAGTGTACT AAGGAGTGTG TGCCTGAAAA TATGGGAACT AAGGGGCTGG	1920
TTTATCGGTT TCTCTAGTTT AGTATTTGCC TTTTGCAAAG TGATCTTAAA TGCCTTTCTC	1980
TAAATTTACA TATCACTATT GTTTAACAAA ATCTAATCTA TTTTAGGTCA CTTATTCTTT	2040
TTTTGAAATG TAGAATGAAC TTTTCAAAG TTTTTCGAAT CTTTTAAAAT CTGTTTGCTT	2100
TATATCGCCA TTCTCCCCC TTTTAAATT CTCCTATAT AGCCTGACAG CTTCCCGAT	2160
GGTACGAATA TGGTTGCTTT CGTCTAGGTG GATGTCGGGG TATTCGGGAT TGAGTTTTTT	2220
TGAGGCAGCC TTGGCGGAGT TTCTTGACAT AGTTAGTGCC GTCTACTTGG AAGATGCCGA	2280
TGGTATTATA GTCAATCTGT GGGGTATTCT TGATAAATAG GTAGTCGCTG TTTCTTATCT	2340
TTGGCTCCAT GGACTTGCTG ACGACATAAG CGATTGGGTC GTAGTCGTCT GGGATAATGG	2400

1131

AAACTCCATA TCTAAATCGT TGTCTGTCAT CGAGCGGCTA CCTGCAGAGA TAAACTACCT	2460
AACACGAGAG TAAGTAGTCT GTCTGTAGTC GTCCAGTCTG ATGATTTTTA CGATACTTCG	2520
TTTTTCTGAT CATAAGTTG CCTCTCGGCA TAGGTCAGAA CTTTACCTTG TCTGGGTGGT	2580
TCCCGTTGGT CGTAGATAGA TTGGATATCG CTAGGAGAAT CCTTTTGAAC TGGAGGAAAG	2640
AGGGCATCGA TCAAGCTACT GAATACTTTA ACTAAGTCAA ATATAGTATT TTTCTTAGTA	2700
GACCTAACCC TTTTTCATA ATTTCTAATG GTGTTTTTAC TTATACCTAT CTTAGTACCC	2760
AATCTTATT GAGTCCAACC ATTACTAGTC TATATTGTTT TATAGTTGAT TGAGTTTGA	2820
ATAGTACGCT GTAGCTGCTA AAACATTCT AGAAATTAAT TTGACTTTCC TAATAGAGTT	2880
GTTCATATCT TATTTCAATC TATTATGTTT TTCACCTCTA ACAATCGCAA TCTCTTCTTT	2940
ATCCATGAAT GAAATCGCTT TCTATTTTGT TAAGTAAAGC ATAACACGAA ATCCACGAAA	3000
ATGAAAACCT TTGTTGTGTT TTCGTAAAAA ATTTGTTGAC AGAGCACGAA ACGC	3054

(2) INFORMATION FOR SEQ ID NO: 184:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1590 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 184:

TGTGATTTTC yGAAAATTTG GTAAATATA TCTTAATCAT TTTCAGGAGG ACAAAAATTT	60
GACAAGATAT CAGAATTTAG TAAATGGAAA ATGGAAATCA TCTGAACAAG AAATTACCAT	120
TTATTCACCA ATCAATCAAG AAGAATTGGG TACAGTTCCA GCCATGACTC AGACTGAAGC	180
TGATGAGGCT ATGCAAGCTG CGCGTGCAAG CCTGCCAGCA TGGCGAGCTT TATCAGCAGT	240
TGAACGTGCG GCTTATTTGC ATAAAACAGC AGCTATTTTA GAACGCGATA AGGAAGAAAT	300
TGGTACTATC CTTGCCAAAG AAGTAGCAAA AGGGATTAAA GCAGCAATTG GAGAAGTAGT	360
GCGTACAGCA GACTTGATTG GTTATGCTGC TGAGGAAGGT CTCCGTATCA CTGGACAAGC	420
AATGGAAGGT GGTGGTTTGG AGGCAACAAG TAAAAACAAA CTGGCTGTTG TCCGTCGTGA	480
ACCAGTTGGT ATCGTGCTAG CGATTGCTCC CTTTAATTAT CCAGTTAATT TATCTGCTTC	540
TAAAATTGCA CCTGCCTTGA TTGCAGGAA TGTGGTCATG TTAAAGCCAC CAACACAAGG	600
TTCCATTCTT GGAATCTTGT TGGCTAAAGC ATTTGAAGAA GCAGGGATTG CGGCAGGTGT	660
TTTCAACACC ATTACAGGTC GTGGTTCAGA AATTGGGGAT TATATCATTG AGCACAAAGA	720

1132

AGTCAACTTC ATCAACTTTA CAGGTTCAAC TCCTATTGGA GAACGTATTG GTCGTTTAGC	780
TGGTATGCGT CCTATCATGT TGGAACTTGG TGGGAAAGAT GCAGCTCTTG TACTAGAAGA	840
TGCAGATTTG GAACATGCTG CCAAGCAAAT TGTTGCGGGA GCCTTTAGCT ACTCAGGACA	900
ACGTTGCACG GCCATTAAAC GTGTCATTGT TCTCGAAAGT GTAGCAGATA AATTAGCTAC	960
TTTGCTTCAG GAAGAAGTTT CTAAATTAAC AGTTGGTGAT CCATTTGACA ATGCTGATAT	1020
TACACCTGTT ATTGACAATG CTTCAGCCGA CTTCAATTTGG GGCTTGATTG AGGATGCACA	1080
AGAAAAAGAA GCTCAGGCTC TTACACCAAT CAAACGTGAG GGCAATCTTC TCTGGCCAGT	1140
GCTTTTGGAC CAAGTTACAA AAGATATGAA AGTGGCATGG GAAGAGCCAT TTGGTCCTGT	1200
TTTACCAATC ATTCGTGTGG CTAGTGTAGA GGAAGCTATT GCCTTTGCCA ACGAATCTGA	1260
ATTCGGCCCTT CAATCATCAG TCTTTACAAA TGATTTCAAA AAAGCCTTTG AAATTGCTGA	1320
AAAACTTGAA GTAGGTACAG TCCACATTAA TAATAAAACC CAGCGTGGTC CAGATAATTT	1380
CCCATTCCCTT GGTGTCAAAG GTTCTGGAGC TGGAGTGCAA GGAATTAAAT ATAGCATTGA	1440
AGCGATGACA AATGTCAAAT CCATTGTTTT TGATGTGAAA TAACGTGTAA AACCAGGAAA	1500
TTGTTTTCCCT GGTTTTATTT TTTTGCTATA AAATAATAAT AATTATAGAA AAAATACGAA	1560
CTTTTTGGTA TTATAATAGA TTGAAACCGG	1590

## (2) INFORMATION FOR SEQ ID NO: 185:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 4848 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 185:

CCTGCAGTTG TCAGACCTGT AATTTTCTTT TTATCTGTAA TAAGAATCGT TCCAGCGCCT	60
AGAAAACCCA CACCTGATAT AACTTGAGCT CCTAATCGTG TAGGATCTCC TGTCCCAAAT	120
TTATAAGATA CGTATTCATT CGTCATCATA ATCAAACATG CAGCTAGACA AACAACTACTA	180
TAAGTTCGGA TGCCTGCAGG CTGGGATTTG CTCCTCTCT CTAAACCAAT TATACTACCA	240
ATGACTACTG ATAAAACAAT CCTGACAACT ATTTCAATAT TTGATAACCC AAGACTAGTG	300
GCTGTCATGA TTATTCCTT ACTTTACGCC CCGGTCTTTG TGTGAAGTAT AATACCGTTC	360
CAGAAATAAT CATCAGAACA ATTGATATAA CAAATACCAG AGCTTGTGCA TTAGATGTTG	420
CTGTTTCATC ACCTGCAGAT CGAATCGTAA TACCTAATGG TTGAGCTAGG GGATGGTAAA	480
GGAATACAGA TAAGTCGAAG TCAGTTAATA AAGAGTTAAA GTTTAAAGCA ATAACAGAGA	540

1133

GAACAACCGG TAAATATAAT GGAATGATAA CCTTCATCAT AGTATAAAAA GGTGAAGCAC	600
CCATACTTCT TGCTGCATCT TCCATCTCAT CATCAACACT AAATAAAATA GCACGTACCA	660
TTCTATAAGA AAATGGGATT TTTACAATA TATATGCAAT AAGTAGAATT ACCAAACTAC	720
CTACCAAAAT CTGATTCAAG ACAAGAAATT GTGGCTGATT AAAAGTAAAT AATAAACTTA	780
CTGCTAAAAG TGTACTTGGT AGTAACCAAG GAAGTAGAGC ACCATATTCA AATAAGAAAT	840
CAAAACGAGA TTTATGTTTT CTGACAACAC GAGCAAATAC AACTGCGAGA ATTGTTGCTG	900
TTGTGCGAGC AATAATAGAA TAAATAAAGC TGACCAAGAA TGGAGAGAAT GCCGCACTAT	960
TACTAAAGAA TAAGCGATAA TTTTCTAAAG TAAAGTTTGA TAATGTTAAG TTACCTGTTT	1020
GAATTGCAAC TGGATCTGTA AATGAGTATA ATACTATAAA AATTAGTGGA AGCATGAAAA	1080
CTGTGAACAA TCCATATGCT ACAATGTGAG CAATGATATT CCAAGGCTTA GACGCAATTT	1140
TTTGTTTTTT AAGAGGCGCT TTAGTCTTAG AGATAGAAAT ATAATTCCA CCTTTTCTA	1200
TCTTATTCAT GATAGTAAGC AAAATTGTAG TTGCAATACC TAAAATAATT GCAAGTAGGG	1260
CAGCTAAATC ACGAGAATTC CCCATCCCTG CAAATGTAAT AATCATTGGA TTTATAGTTT	1320
GAAATCTTTT ACCACCAACA ATCATGGGTG CTGCTACTGC AGATAAACCA CTAAGAAAAA	1380
CCATAATAGT AAGTGCAAAT AGAGTTGGAA TTAAGGTTGG TAACACTACT TTTCGGAAAA	1440
CAGTAAATGG TTTTGCTCCC ATATTTGAG CAGCCTCAAT AGTGTGATAG TCAACGCTTC	1500
GAATTGTATT TGTTAAAAAC AATGTATGAT TAGCAGTTCC TGAAAATGTC ATAATGAATA	1560
AGACTGCACC ATACCCAATA AACCAGTTAG GGTCTAAAGA AGGGATAACA TTTTGTAAAA	1620
ATTTTGTAAT CAATCCATAA GGACCATAGA CAAATTTATA TCCAGTCGCT AAAACCACTC	1680
CTCCATAAAT TAAAGAGGTC ATATAACCTA ATTTTAAAT TTTAGCACCT TTAATATCAA	1740
AGTACTCTGT AAATAGAACA CAAAGAATAC CTACGACATT AACTGTAATA ATGAGTGAAA	1800
ATGCTAACTT AAAACTGTTT ATAATACTCT GAAGTGCCCT CTGAGATTTT AGAACACGAT	1860
GTACAGCATC AAGGGAAAAT TCTCCTCCTT TTACAAATAC ATTCACTACT AGATCAAAGT	1920
TTGGATAAAT AATAAATGTT ACTAAGAACC AGATTAACCC TAAACGAATA AGCCAATCTT	1980
TTAAATTTAA TTTATGACGC ATACTGCACC TCCTTAAAT TGCAGAACGT CTGATGGTGT	2040
GATAAATAAT TCCACACTTT CTCCGACAGA TCTAATAGCA GCCTGACTAT CAATACTTGT	2100
TACATTAAGA ATCTGACTTT CAGAACTTT TATTGTATAG TGAATTGTAA CTCCAGAAAA	2160
CTCAACATCA ATAATTGTCC CTTTTAGAAT AAAATCTTGT TCAGTTTCAC GATTGAATCG	2220
AACTTTCTCT AATCGAATGT ATCCTTTTTT ATCCTCTAAG AAAACGCTTG TATTTTCA	2280

1134

TAATACTTCG TGGACTGTTT CATCGGTCAA AACATTAATA TCTCCAATAA AATCACATAC	2340
AAATTCAGTT TGAGAATTAT GATAAATCTC TACTGGTGTA CCGACCTGTT CGATGTATCC	2400
ATTGTTAAAG ACTGCAATTC TATCAGATAA AGTCAAGGCT TCCTCTTGAT CATGAGTAAC	2460
ATATAAAGTA GTAATACCTA ACTCTTTTGT AAGTCTTTTC AACTCTTTTC TCAAATCTAC	2520
ACGTAATTTT GCGTCAAGGT TTGACAATGG TTCATCTAGA CAAAGAATTT TAGGTTCAAG	2580
AACCAGAGCA CGAGCCAATG CTACCCTTTG TTGTTGACCC CCAGATAATT CTGATACATT	2640
ACGCTGTAAC TGTTGATCAG AGATCTTAAT TTTTGCTGCC ACTGCTGATA CTTTAGCTTT	2700
AATAACATCT GGAGCTACCT TCTTAACTTT TAAACCAAAT GCAATATTAT CAAAAACAGT	2760
CATAGTTGGA AATAGCGCAT AAGATTGAAA TACAATACCA ATTCCACGCT TTTCAGGTTT	2820
CAAAATGAGT ACATCTGTTT CATTAACTTC AATACTTCCT GATGATGGAT CTAGAAAACC	2880
TACCAATGCT CTCAAAGTAG TTGATTTACC ACATCCTGAA GGCCCAAGAA ATGTAAAAAA	2940
TTCCCCTTCA TGTATATCTA AATTCAGATT ATCAATTGCA ACAAATCAC CATATTTAAT	3000
TTGAATATTA TCAAATTTAA TCATCTCACT AACTCCCTCT ATTACTAAAC CAAAAGCCTC	3060
TCTTTATTTT TTCCATAAAT TTAGAAATAA TAGAGAGACT TGGACATAAA AATTAACCTT	3120
TATTTCTTAT TGTACGTATT CTAATTCAGC TTTTCTACC CATTCAATCA AATGCTTTCC	3180
AACAGCTTCC CAGTCAATAT TTTGTGGTTT CACTTGATCA ACAAATTTCT TCGTATCTTC	3240
AGGTAGATCT TTGAGGGCAT CTTTATTTGC AGGAATAGAT CCAAAGTTCT TACTATATTC	3300
TACTTGAATT TCTGATTGAC CAAACCAATC AATAAATCTT TTAGCTAACG CTTGTTTTTT	3360
ACTAGTGCTT AAAACCATAG TTTGTTCACT TACAAATGGT ACACCAATCT CAGGAGTCAT	3420
AACTTTGAAG ACAACATTTT GTTCTTTTGT TCCAATAAT GCACCAGAAC CCCACATCAT	3480
TCCATATTGT ATTGGATCTT CTTTGTCTAA CATCTTAACA ATTGAACTTT CTCCCTTTTG	3540
AAGAGTGTAT GCATTTTTC AATATCTTTT TGCTACTTCC CAACCTTTTT CGGAAACACC	3600
TAATTCACCT TTATCATCAA GGTATCGAAC TAAGATACTT GCTAGAATTG CCCGTCCTGT	3660
ACCTCCTTGA AGACCAGAAA TTGAATATTT ACCTTTTATC TTAATACCTA ATTCAGTCCA	3720
ATCTTTAGGC ATTTCTTTTA CATCAGGCGC CCCAATTAAA ACTAATGGTT GAACAATCAC	3780
AGGATTATAA TAATTATCTT TATCTGATAA AGATTGATCA ATTTTATCTA ACCATTTAGG	3840
CTTGTAATGT ACTAGTAATT TTTGATCTCT AATTTTATTT GAATCAACAG CACCAATTCC	3900
AAATACCATA TCTGCAACTG CATTATCTCT CTCAGCAATA ACACGGTCTG CTAATTGAGC	3960
GCCAGCGATA TCAACCATTT TTATATTAAA ACCAGCTTCT TTTGCTTTAG CAGTTAACCA	4020
ATCACCACGA CCAATTTGAGA CTGAGTTCGA ATAGATAACT AATCTTGAC TTTTATCAGC	4080

1135

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TTTTTCTTCA GATGAAGAAG CAGTCGTAGA ATTTGAACCT CCAGAGCAAG CAGCAAGTGT      4140
AGTAAGAGCA ACTCCCGTTG CAAGTACAGT AGACCAAACCT TTCATTTTTT TCATGATAAG      4200
TTCTCCTTTT TTATTATTTT ATTTAAATTT TTCGTGATAT GGAACAAATT GTCTCATATC      4260
TTCAAATACA GTATAGTCAA TACGGTTTAC AGTAATAGTT GGAATCTTCT CTAATAAAAT      4320
TTCAGTTAAT TCTGCTCTGA CTTTAGTAAA CTCTTCTTCC TCCTCTTCGG TTAGAGGAAT      4380
CCGAAGATAC CCAATTGAAA TATGGAATTG ATATCTATCA TGATTAGGGA AACAAACACC      4440
TGCTTTTTCT GAGACATAAG TACGAATTTC TTCTAATCTC TTTGCAGAAG CTTTCATCTGC      4500
AGGTTCAACT AGTATGTTTT GTTTTCCCAT TTCAGTTATA CGCATATGAA TTTCTTCATC      4560
CAACAATGGA AAAATTTCAA GTTGTTTAGC AAAGTAATCA TGTATTTCTT GTAAAGGTGT      4620
ATCTAGAGGA AGATTACTGC TCCAAAACTC gTCACGATT TTCATGGCAC AACAAATCAA      4680
TTACAGTCAT GTGAATAGAA TTCCTTGAG TAAAGTAAA CTTATCGATA AATGGTAATT      4740
CTCTATAACG TGATTGAATA ATATCAACAA CTTCCATCAA ATCTTGTTTA GTATAAAGAT      4800
TTGCTACAAC TGTATTCCCA GGGAAATGAT TAAATTCCCC ATTCTCGG      4848

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(2) INFORMATION FOR SEQ ID NO: 186:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 3763 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 186:

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GTTATAAGCA ACACCTTCTT GCTTGCCATA AGTTGTGAAA TGGGTAGAAT CGATATCTAC      60
AATGAGTTGG TTTAGCTGGT GAAACTGTAA AAAGAATTCG ACCAATTCAA GCTTGAGGCA      120
TCGCAAACTA TGGACTGTTT CCTCGTCAGT TCTGGAAAGA AAACGGGATA AGGTTGGCTG      180
TGAAGCAAGC TGCCCTCCTT CCAATAATTT TGGAAAGTAG GCATCAGCTG ACAATTCTTT      240
ACAAGCATAG TCCGTTCCAT AACCTGTTAA CAGTTGAAAG AGGAACTGGA CAAGGATATC      300
TGAATCCGAA TAACGACAGT AGCGGCGTTG GTCATTTCGTT ACTAAATACT TAGAAATCCG      360
CTCTTTTAGT TTCAACTGGG AAAAAAGTTC CTGAAAAAAG ATAAGACCAC CATACTGGGT      420
TAAATGACCT CCATCGAAAG ATAGTTGGTA AAAAGACTTG TTTTGAAGT GATGATTTGG      480
TAAACTGTTT ATGTGAGTTT CCTTCTTTT TGTGTTTTT TCTACACTTA TACCATAAAG      540
GGGAAACTCT TTTTGTCTA GTAAAAACA CCCATTGGGT GAAAAAGAA ACCATCCAGG      600

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1136

ATCTAAGCTA AGGCAAGGAT TCTGGATGGT TTTTAGATTT GGGGTGAATA ATTGGGGATT	660
TAGGAGAAAT GATGGTATCT TCCAAATCAA AATCAACTTC ACTCCATAGT CTCAACTGAT	720
TGATTTTCCC ATCTTGATAG GTCACATCCT TGTCAAGGAT AAACGTAGTC AACACCTCAT	780
GTTGACCTTG ACACCTGATG TCATCTACCA AGAGCCAGAC ATCCTCTACC AACATGAGGA	840
TTTTTCTCCT GTGAAGATAA GGCAAATCAG GTTCTGCTGA CCAATAAGCC CCCTCAATAT	900
AATGCACTCC CTCCCTTTCT TTATGGTGAC AAAACAGGGA GTGAGGATAG TATTCATATT	960
CCCAGGATCC CGTGATTCTT TCCGGAGCTT TCCCATCTAC AATGCAGGTC GAATGACTCC	1020
AAGCACTCTT TAAGAGATAA CGTTCATATA TCTCCCGATA AGAATAACGC CCAGCATCTA	1080
TGAAAATAGG TTGGCCTTGA TACTGTAAGC AAAAATATT CTCGTCACTA TGAATATGGG	1140
CACCTCCTAG CGGACCATTT TTGAAAAATA GATAACGATG TTCATCCTTA ATGCAGACAT	1200
GTCCAGAGTC TTCAAAGATC ATGGACTTAG GCTGCCAAGC TCTCTTTTCA AATTCCTGCA	1260
GTCGCTTGAC CTMTTCTCGC CCCAGGAACA AGAGGCTAAG CAAATCAACT TTAACATCCA	1320
GACCGTTAAG AAGGTCTTCC TGGTTCAAAA CCACAGCAGA CAGGCTCAAA ATTTCTGTCTG	1380
TTTCTGTAGA ATCGCTATCA CCAAAGCCA AAGTCCGTCC ATCTAAGCCT GTCATCATTT	1440
GAATATAGGT CGCCATCTTT TCCAGCAACT CTTGGTAACT ATCTTGCAAG TCTGGAAGCA	1500
AGAGACACAA ATCCAGCAAG GCTTTATAAA CCTCTACATG ATAGAGAATC GACTGTTCAA	1560
ACTGGCTTCC ATCTCTAAA ATCTGTGTCT CAATTTGCTG TTTCAACTCC TCTGAAGCAA	1620
AATGGTAAGC TTCTTCTAGA TCCATCTTAT CTGAAAAGAA ATGATAGATA GCAAGCATCG	1680
GAATTGTTTG TAAATCCCC CAGTTACTAA GGGTGACTT GCGCGATAG TAGCTTTTCA	1740
TAAAGTCAAT CTGCTTTTCT AGACTGACCA AAATTTTCTC TAGTTCTTTC TCCTCTAGCA	1800
AGTCAAATTT CAAGAGGAGC AAGAGTAGTT TCAACCAAGT AAAGGAACGA ATACCCGTAT	1860
CCAAGGTTCT AGTCATCAAG GATTGAGGAG AAAATTCTCT CACCTGCTCA ATCCAATCAA	1920
ATAGAAAGAA CTGCACTTT TGAATATAGT CCTTATCTCC TTCTACCAGA TACCCTATCA	1980
TAAACTGCAA GAGATATTCT TGTGATTGA GCATATAAGA CCATTCTGGA TCATCTTCAA	2040
ATACTTGATC CCATACCATC GGCTGGATTT GATGGATTTT TGAACAAGGC TCCATATCCC	2100
AAGGACTATC AAACATAAAA CGATTGTCCA TCAAGCGTTC AAGGGAAGTC TTGACTTTCT	2160
CATAGTCTTT TGAACAGTGC GACAAGATAT AATCACGACA TTGATTTCCA TCGACTCTTT	2220
CAAAAAATTG TCTTCTTTCT TCTTTCATTA TCTATTACCA GAAAAAGAAC TACTTAAAAA	2280
GCAGTCTTT TGTCTTTCCC ATTACACTTT CTTTTCTAC ATGGATGACC ACACCTTTTG	2340
CAATCTGCAA GGAGACCAAG TCATCTTGGA TAGAAATGAT TTTTCCATGA ATTCCAGACA	2400



1137

ATAACAACAC TTCATCACCA AATGTTAAAG AAGCTAAATA CTCTTGTCGT TGCTCCATCT	2460
GTTTGCGAAG CAACTTTTGC TGACGAATAG AATGAAAGCT TGACAGTAAA AGGGGACTCA	2520
CTGCCAAGAC AATCACTATT CCATAAAACA ATGTTGTATC CATTAAAGCTA TAATCTTAAG	2580
CCAGCTTCCG ATAATTCCGA TGATAACTGT TAAATAACG AGTTTATATG TTGTCCATTT	2640
CTTTTCTTTG ATCAAGTAGT AAACTAAAAG TGTAATAGG GCTGGTAGAA GAGCTGGAGC	2700
AACCTTATCA AGCATTCCCT GAATACTTAC GATACTTTGT TTAGCGTCTG CTTTAACTTC	2760
CCCTGCAGCA AAGGTAATCG GCACCATAAT CTTAACAGAT GTCGCTGCCA AACCAGCAAT	2820
TACGTTACAC CGATAATATT GGCAATACGA GAAATCGTTG CCATCTGTTT GCTTAGTTTA	2880
TCAATCACAG TTGTTCTTAG TTTGTATCCA TACAGACCAG TTGACAATTT AATCGCTGTT	2940
AAAATCGTAT TCATCGCAAG GAAGAACAAG ATTGGACCGA CAACCAAGCC TTCTTGAGCA	3000
AACGAAGCTG CGATGGTTGA GAACAATGGA GCTAAACAGA ATTGAGAAAG AGAATCCCCA	3060
ATACCTGCCA ATGGTCCCAT CAAGGCCATC TTGATGCTAC GTGTTTCTTT TGCCGGACGG	3120
CCATTTTCCA ACATTACAAG ATGCAAGCTG GTAATAAAAG GCAGGAAGTG TGGGTTGGTA	3180
TTATAGAATT CACAGTTTTC TTCCAAGGCT TGGTAGAAAC CTTCTGATC CTCTCCATAG	3240
TGTTTTTTCA AAGCAGGATA CATCACATTG GCATATCCCA ACCCTTGATA GTTACTATAG	3300
TTAAATCCAT TTTGACAAAA GAATGCCCCG AAAGACGTTT TAAGATAATC ACGTTTGT	3360
AATTTGTTAG ATCCAGTCAT CGTGTGCTTC CTCCTCTACC ACATGATCCG CTGTTTTTGG	3420
CTTGTTATAA AATTCAATCA AAGCAAAGAT AGTACCTACA ATTGCAATAC CAATTGTTGG	3480
GATGTTTAGA TAAGCTGCAC AAACATATCC CAACAAGACA AAGGGAATCA ACTCTTTCTT	3540
AGCCATCACT GACAAGATCA TCGCAAAACC GATAGCTGGG AGCATTTTAC CAGCAACTGT	3600
CAAACCTGTA AGTAATACCG GTGGAATGTA GTCTACGAGT TTCAACAAGG TATCCATTGA	3660
AAGGGCACCA AGCAACCCAA GGTAAATCCA ATAAAGGCAA ACAACCAAAT TGTTGCATTT	3720
AGAGTGAAGT TAAATTTCTT CAAATTATGG TTTTCAAGT GCT	3763

(2) INFORMATION FOR SEQ ID NO: 187:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 5053 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 187:

1138

CAATCTCTGA GTATGTGCGG TCAATACTAW CAAAGGGAAT YCCTGACGTC AAGTAATGTT	60
CAATTGGmCT ATAGGTAATG GCAACCACTC CATCAACTTT ATTATGACGC AACATCTCCA	120
GATAGTCTTG CTCTCTATTT GTACCATTGA TAGAACATAA GAGTAATTTG TTATTTCTCT	180
TATAGACTTC ATTTTCCACA TGCATAGCAA ATTCTGAAAA GAAGGGATGC CAGATACTTG	240
GTACAATGAT TGCAATCGTT TCTGTTGAT TTTTTTTCAT TCCTCTAGCG TAGTAATCTG	300
GAATGTAATT CAAAGTTTTA ATCGCTTGTT CCACTTTTTT CAAAGTTACT TCTTTAATGC	360
CTTTTTCTTT ATTAATTACA CGTGAAACAG TTCCAACACT AACTCCTGCT TCTAAAGCAA	420
CATCTTTCAT GGTAAATTGAT TTTCTTTGTT CTACCATATT ATCACCTCCT TTCAATATAT	480
AGTATCATGC AAATGCTTTT TAAGCAACTA TTTCTCAATC ATTTTGGGCC AGATCATTTA	540
TCCCATCATG AATAAAATCA CTCCAATTAG CTTTGTAAAA TACTTCAATT TTCATGTGTA	600
AACATCTACA TAAACAGGA AAAGCCTTGG TTTTCATGGCT TTTTTCGTAT CTTCTATAAA	660
AAAAGCAAGA GTTTTAGATG GCTATAAATC TAGATGTACA TTTTGCTTAA ATGATTGAAG	720
GTCTTTTCTT AACAAAAACA CCCCCAAAT TAGACTTTTT CTGTCTAACT TTTGAGGTAC	780
AGTTCAAACG CGAAATAGCG TTTTTTTGTT ATTTTGGTT ACTCATCTAA TCGAATAAAC	840
ATCATGGCAT TTAACAAGTA TATGAGTGAG ACCGTGTTTA TATTATTTGA ATAGATGAGT	900
CTCTTATTTT CAATAGGAGG AATAATAAAA TTAGAAATAA TGATATCATA AGGTGAATCT	960
TCTAAAGATT CCTTTGATAA TTCTAATTCA GTCCAAACTT CCAGTTCAAA ATTATTGCTA	1020
CAATAATAAG AAAGTGCTC TGCAACGAAT TTTGCATGAT ACTGATCAAA ATTACTCATA	1080
ACTAAACCT TTAGTTTAGG CTGATTTTGT AGCAAATTAA TCACCAAATG TTTGGTATGA	1140
GTGATGAAGG TATAAGATAG ATGATTTACC ATCATTGAAC TAGAACAAAC CTCAAGAGTC	1200
TCTAAATAGT GAGAAAGCTC TTTTTTTATA TCTGAAACAA ATTTTGGAAA AATATTTTGA	1260
AAGTTCCTGA TTGTATTCCC TTTTGTATCA AATAAAATAA ACTCAGTAAA CAACTCTTGA	1320
CGATACAGAT GTGCGGTATT ATGCAGATGC CAAATCAGAT TATCCTTATT CTCCATTTCA	1380
ATCTGATACT TGACTGAAAT CTGATCAATA AAATCACTCA ATAGATGGTA AGATTTTTCA	1440
ACATAACTAT CCTTTTTTAC GCATTTTCATA AAGAGACTTT CATCTATGAA AAACATTTTT	1500
TGAAAGTAAG ACACAAATAA TTGGCAAACA ACTTCTTCAT CTAAAGAGAT ATTGTATTCT	1560
GATTCAAAAC TCTGAGCAAC ACCTTCTATT CTTCTGCCT GCATTAAAAA ATCCAAACTT	1620
TGGTCGTTAA AAGAATCTTT ATCTACTTCC ATAAAAATGAC CAACTTTTAT TCTATATAGG	1680
TTTCGTAATA GGAGCAACTT TAGCATTTCTA TGCGTTGACA AATTCATTGG AAAGCTTGTT	1740
TCCTTATAAA CCAATTCTAA CAATTGAGAT AGTGGCTCTG ATGAAAAATT TTCAAATGGC	1800

1139

CATTCTAGGA AATAATATTT TTCTGAAAAA TATTGTGCAA AAAAGTAACG AATGTCTCTC	1860
TCATTTCCAA TGATTTGAAC AGGGGTCAGA CTAACCTCAA ATTGAAATTG CCTTTTAATC	1920
ACTTTATTGA TTTGGCTAAT AATACGATAG AGCGAAGATG AACTGATATA AAATTCTTTA	1980
CAAATACTCT CAGCTTGACA ACCTTCATTA AAGAAGATGA ATTCTAAAAT CGAAAAATGA	2040
GTTGAATGTT TAAAGAAATG ATGGTAAACC ATTTCAATAT CACTATCATC GGTATTAATA	2100
ATGCGTATAC CATTAGTAGA AGAATGAAAA ATCAAGTCAG GAAAAGCAGA TTAAACATGG	2160
GATAGATCAT CTTGACTGC ACGTTCTGTA CAATTTAATA ACTCTGCTAG TTCAGAACGA	2220
TGAAACCAAC GTTTATGTTT AAATAATAAT TCTAATAATT CTAATTCCTT ATGACTTTTT	2280
TTAGATAATA AATCTCTCAT GAATATCTTT CTCTCTTTAT AAATTATCGG ATTAAACCTC	2340
TTGCAATTAT ACCACAAAGA ATAGGTATAG CATGATATAA CGACTTTTCC TAAAACTTTT	2400
TATTTCTGAT AATAACACTA CGGAGACAAT ATATAAACAA TTTTCTTATT TTACCGTCTA	2460
TTGAGGGCGT GAATACAGAA TCAAAATCAA GTCTAAAGAT TATATTTTAA ATTTTAAAAA	2520
TTATATAATA GCAACAATTA AAGAATTTGA TTTTAAAAA TTATATAATA ATAACAATCG	2580
AAATAATTGA CTTTTCTATA TTAAAGTTAT ATAATAGTAA TAATCAAAGA AATTGATTTT	2640
TTGATATTAA AATAAAAAAG GAGGGTAGGC AGTGTGTGTA TCAATTATTG CTGGAGGTCT	2700
TATTTGCTCTC TTGGCAGGTA AAATCACTAA AAAAGTAGTT CTATGGGAAT CATCGCAAAT	2760
GTATTCGCTG GTTTAGTCGG GGCATATGCA GGACAATCTC TTTTAGGTAG TTGGGGTCCA	2820
GCAATCGCTG GAATGGCTTT GCTCCCATCT ATTGTAGGTG CAGCGATTGT GATTACTGTA	2880
GTGTCAATCT TTACAGGTAG AAAGTAACT TTTCCCCAGT AAAGTTAGCA AACTATTTTT	2940
AAATCAATGA CGGGAAAAAT AGTTTAAATG TTAAATCGAA AGGATTGTAT ATGTCAAAG	3000
CAAAGAAAAT ATGTTTCATT ATTTTCTGTA TTTTAATCTT GACAATTTTC CTTCTGTGTT	3060
TGATAGATTA TCATCAAGTT AGTGATCTAG GTATTCATCT ACTTAGCTGG AGACAGAACT	3120
CCGTAGTTGA ATTCTATCTT GCTAGATATG TCTTTTGGGG GACAGTGGTT CTATCAACTT	3180
TAGTTTTATT ATCCATTTTA GTTGTGATGT TTTATCCTAA ACGTTACTTG GAAATCCAAC	3240
TTGAAACTAA AAACGATACA TTAAATTTAA AGAATTCGGC AATCGAAGGT TTTGTTAGAA	3300
GTTTGGTGAG TGATCATAGA TTGATCAAGA ACCCAACTGT TCATGTAAAT TTACGAAAAA	3360
ATAAATGTTT CGTTCATGTA GAAGGTAAAA TTCTTCCTTC AGACAACATC GCTGACAGAT	3420
GCCAAATAAT TCAAAATGAA ATAACATAAT GATTGAAGCA GTTTTTTGGT ATTGAGCGTC	3480
AAGTAAACT TGAAGTTGCA GTAAAAAATT ACCAACCAAA ACCTCAAAAC AAAAAGACTG	3540

1140

TTAGTCGTGT GAAGTAAGGA AGTAAAAAAT GGAATGGCTT AAACAATATC GATATCCAAT	3600
TATCGCTGGT CTCATAGGCG TATTTCTGGC TTGTTTGATT GTCTCCTTTG GCTTCTTCAA	3660
AAACAATATTT GTATTGATTT TAGGAGCACT GGGAGTTGCA GCTGGATTAT ATATCGAAAA	3720
AAACTATATA GATAAATAAA AAAATAAAAA TTACTAATTT AATTAAAGGA GTTTCATATG	3780
TCAAACGAAA AAAACACAAA CACTAACGTA GAAAAGAAAG ATGCTACTGT TGTAGCTCAC	3840
GAAATCAAAG GGGAACTTAC TTACGAAGAT AAAGTTATCC AAAAAATCAT TGGTCTTTCA	3900
CTAGAAAACG TTTCAGGTCT TTTGGGAATC GATCGTGGTT TCTTCTCAA TCTTAAAGAA	3960
AAAATCGTTA ACAGCGATGA CGTAACAAGT GGTGTTAACG TAGAAGTTGG TAAACACAA	4020
GTTCAGTTG ACTTAAACGT TATTGTTGAG TACCAAAAAA ATGTTCCAGC TTTATATTCA	4080
GAAATCAGAG AAATCGTATC TTCAGAAGTT GCTAAAATGA CTGACTTGG AATTGTTGAA	4140
ATCAACGTAA ACGTTGTCGA CATCAAACT AAAGAACAGC ATGAAGCAGA CTCAGTAAGC	4200
CTTCAAGATC GCGTATCTGA CGTTGCTGAA TCAACAGGAG AATTCAC TTC AGAACAATTC	4260
GAAAAAGCTA AATCTGGTCT TGGATCTGGT TTCTCACTG TTCAAGAAAA AGTTAGCGAA	4320
GGTGTAGAAG CTGTTAAAGG TGCAGCAAAT GGTGTAGTAT CTCACGAAAA CACTCGTGTA	4380
AACTAAGATA AAATAAATAT AACAGGAGAA ATTATCATGT CAGTAGAAGA AAAATTAAAT	4440
CAAGCTAAAG GTTCTATTAA AGAAGGTGTT GGGAAAGCCA TCGGTGATGA AAAAATGGAA	4500
AAAGAAGGTG CAGCTGAAAA AGTTGTTTCT AAAGTAAAG AAGTTGCCGA AGACGCTAAA	4560
GACGCTGTAG AAGGTGCTGT AGAAGGTGTT AAAACATGT TGAGTGCGCA CGATAAATAA	4620
GGTAAAAAGT TACTTTATCT TTTAGTAAT ATTAGTCAA AGAGTCTGAG TCAAGATGAT	4680
TCTCAGAAAA CAAAAGCTA GAGATTCCCA ATTGCGGAAC TCTAGCTTTT TAATTTTGCC	4740
TCTTTCTCTT ATTATATTC AGCAGGTGT TGGCCATGAG TACGAATCCC ATGTCAATTC	4800
TCACTTGACG CTTACCTCTC AGATGACATC TCTTATAACC CAAACAAACC TTTATCTGCC	4860
CAAAGACAGA TTTCATATCA ATCTTACGTT TAGCGAAAAT TTGTCTACCC TTGGAAGATA	4920
AAAGTGCTG ATATTCTTTA GTTTTAAAC ACTGGTAACG TTCATTCTATA TACAGTCTCT	4980
TTTGAGGGGC TGATTCAGGT TCATAATCGC AGTCAACATT GATTTCAAGG CTGTTTGCTT	5040
TCTATCTCCC CGG	5053

(2) INFORMATION FOR SEQ ID NO: 188:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 6492 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

1141

(x1) SEQUENCE DESCRIPTION: SEQ ID NO: 188:

AATCTCTTT TTTCCAACAA AATGTATGAC CTGCACTTGA ATACTTCTCA TTGTTTGTAC	60
ATTCATCTAC TTTCATATAA TCTTTTACAA AATCATAATA TGACATAACA CACTATCCCT	120
TTTAGACAAT ATTCCAATTA GCCTTATTAA TTCAAACTA TTGTATTAGT AATTATAACA	180
GATGTATAAT AGAAAAGCAA TGATAGATAT TATCAATTAA GCGAATTTAT ATCTAAAAGG	240
GATATTAAAG AAAGGAGATA TGCTTATGAA GATTTACAAA AAACATTTTG CTTATGTCCA	300
AGATAAGAAA TATCTTGGGG TTTTGGCCAT AATTTTTTCT GCTATATCTG CTGCACTTAC	360
AGTATATGGA TATTATTTAA TCTACAAATT TCTAGATAAG TTAATAATTA ATTCAAACCT	420
ATCCGGTGCA GAGAGTATAG CATTAAATC TGTTATTACA CTAACAAGTG GAGCGATATT	480
TTATTTTGTG TCAGGAATGT TTTCACATAT CTTGGGATTC AGGCTTGAAA CAAATTTAAG	540
AAAAAGGGAA TCGATGGTCT GGAAAAAGCA AGTTTTAGGT TCTTTGACTT AAATCCATCT	600
GGTCAAATAA GAAAGATTAT AGATGACAAT GCTGCACAAA CTCATCAGGT GGTAGCACAC	660
ATGATCCCG ATAGTTCTCA GGCAATAATC ACACCCGTAC TTGTACTTGC ACTTGGCTTT	720
ATAGTAAGTA TAAGAGTTGG CATAATTTTG CTTGCTCTTA CTATAATTGG TGGCTTAATT	780
TTAGGGGCAA TGATGGGCGA GCAAGAATTT ATGAAGATAT ACCAAGAATC CCTATCTAAA	840
CTAAGTGCTG AAACGTGTGA GTACGTGAGA GGAATGCAAG TTGTAAAAAT ATTTAAAGCA	900
AATGTAGAGT CTTTTAAAAG CTTTTATAAG GCGATAAAG ATTACTCAA GTATGCTTAT	960
GATTATCCC TATCTTGTA AAGGCCTTAT GTTTTGTATC AATGGTTATT TTTGGACTG	1020
ATTGCAATTT TAATTATTCC TATAGTTTAT TTTATGACTA GCTTAGCTAG CGCAAAGGTG	1080
ATTTTACTAG AGCTTATCAT GATTTTATTT TTATCAGGAG TTCTCTTGT TTCATTCATG	1140
AGAATGATGT GCACTCCATG TATATTTCTC AAGGAAATTA TGCAGTAGAT ACTTTAGAGG	1200
CGCTTTACGA AGATATGCAA AAAGACAAAT TAGTGCATGG TAATGTCAAT AATTTTAAAA	1260
ACTATAATAT AGAATTTGAG AATGTTAGCT TTGCTTATAA TGATAAAGCT GTCATTGAAA	1320
ATTTATCCTT TAATTTAGAA GAAGGAAAGT CCTACGCACT TGTGGTTCA TCTGGATCAG	1380
GCAAATCAAC AGTAGCAAAA CTTATATCAG GTTTTACAA TGTTAATAAA GGAAGCATAA	1440
AGATAGGCGG GATAGCAATA AGTGAATATT CTGACGAAGC CTTAATTAAA GCCATTTCTT	1500
TTGTTTTTCA AGATTCAAAA TTATTCAAGA AGAGCATTTA TGATAATGTA GCGTTAGCTA	1560
ATAAAGATGC GACGAAAGAT GACGTTATGA GAGCCTTAAA ATTAGCAGGA TCGGATTTAA	1620

1142

TATTAGACAA ATTCCAGAA AGAGAAAATA CAATCATAGG CTCAAAAGGT GTTTATTTAT	1680
CCGGTGGAGA AAAACAAAGA ATTGCAATTG CTAGAGCAAT TTTAAAGGAT TCCAAAATTA	1740
TTATTATGGA TGAAGCATCA GCATCTATTG ACCCAGATAA CGAGTTTGAA TTGCAAAAAG	1800
CTTTTAAAAA TCTTATGAAG GATAAAACAG TTATCATGAT TGCACACAGG CTATCTACAA	1860
TTAAAGACCT TGATGAAATT ATTGTCATGG ATAGTGGAAA AATTATAGAA AGAGGGTCTG	1920
ACAAAGAATT AATGTCAAAA GATACAAGGT ATAAGAGCCT GCAAGAGATG TTTAACAGTG	1980
CGAATGAATG GAGGGTTTCA AATGAAAGAG TTTTATAAAA AAAGATTTGC TCTTACAGAT	2040
GGAGGAGCAA GAAATTTAAG TAAAGCAACA CTGGCTTCAT TTTTCGTTTA TTGTATAAAC	2100
ATGCTTCCTG CCATATTACT TATGATTTTT GCTCAGGAAG TTTTGAAAA TATGGGCAAA	2160
AGCAATGGCT TTTATATAGT ATTCTCAGTT TTGATTTTGA TAGCAATGTA TATTTTGCTT	2220
TCTATCGAAT ACGATAAATT ATATAACACA ACCTATCAAG AAAGTGCAGA TTTAAGAATA	2280
AGGACAGCGG AGAATTTATC AAAATTACCT CTATCTTACT TTTCTAAACA TGACATTTCC	2340
GACATTTTAC AAACAATCAT GGCTGATATT GAAGGCATAG AGCATGCAAT GAGCCACTCA	2400
ATACCAAAGG TGGCGGCAT GGTACTGTTT TTCCCATTA TATCTGTAAT GATGCTAGCG	2460
GGCAATGTCA AGATGGGTTT AGCTGTAATT ATTCCATCTA TTTTAAGCTT TATATTTATA	2520
CCTTTATCTA AAAAATATCA GGTTAATGGA CAGAATAGAT ATTATGATGT CTTAAGAAAA	2580
AACTCAGAAA GCTTTCAAGA AAATATCGAA ATGCAAATGG AGATTAAAGC ATATAATTTA	2640
TCAAGGATA TTAAAGATGA CTTATATAAA AAAATGGAAG ATAGTGAGAA AGTACACTTA	2700
AAGGCGGAAG TAACTACAAT TTTAACTTTG TCTATATCTT CAATATTTAG CTTTATATCT	2760
CTTGCTGTTG TGATATTTGT CGGCGTAAAT CTAATTATTA ATAAAGAGAT AAATCTCTCT	2820
TACCTTATAG GATATTTACT AGCTGCTATG AAGATAACAG ACTCTTTAGA TGCATCTAAA	2880
GAGGGCTTGA TGGAAATATT TTATTTATCG CCCAAAATAG AAAGATTAAA AGAAATTCAA	2940
AATCAAGATT TACAAGAAGG CGATGACTAT AGCTTAAAAA AATTTGATAT TGATCTAAAA	3000
GATGTTGAGT TTGCCTACAA TAAAGACGCA AAAGTTTAA ATGGTGTAAG TTTTAAAGCT	3060
AAGCAGGGAG AGGTCACTGC TTTGGTAGGT GCAAGTGGCT GCGGTAAAAC AACTATCTTG	3120
AAACTTATAT CAAGACTTTA TGATTATGAC AAGGGACAAA TCTTAATCGA TGGCAAAGAT	3180
ATAAAGGAAA TATCAACAGA ATCCCTTTTT GATAAGGTGT CTATTGTTTT CCAAGATGTG	3240
GTTCTCTTTA ATCAAAGCGT TATGGAAAAT ATTAGAATCG GTAAGCAAGA TGCAAGTGAC	3300
GAAGAGGTTA AAAGAGCAGC AAAACTTGCA AATTGCACAG ATTTTATAGA AAAAATGGAT	3360
AAAGGTTTCG ATACAGTTAT TGGTGAAAAC GGAGCTGAGC TATCAGGAGG AGAAAGACAA	3420

1143

AGATTATCAA TAGCCAGAGC CTTCTTAAAA GATGCGCCGA TATTGATCTT AGATGAGATA	3480
ACAGCAAGCC TTGATGTTAA CAACGAGAAA AAGATTCAAG AGTCTTTAAA TAATTTAGTT	3540
AAAGATAAAA CTGTTGTAAT CATTTACAT AGAATGAAAT CCATAGAAAA TGCAGACAAG	3600
ATAGTAGTTC TTCAAAACGG AAGAGTAGAA AGCGAAGGTA AGCATGAAGA GCTTTTACAA	3660
AAATCAAAAA TTTACAAAAA TTTAATAGAA AAGACAAAAA TGGCAGAAGA ATTTATTTAT	3720
TAGGAGGACT ACAATGGATA ATAAAAAATT AAAAGTAAAA GATTTAGTAA GCATCGGTGT	3780
TTTTGGCGTA ATTTATTTTG CCTTCATGTT TGGAGTTGGT ATGATGGGCT TGATTCCAAT	3840
ATTGTTCTTA ATATACCCGA CAGTATTAGC CATAGTTGCA GGAAGTGTG TTATGTTATT	3900
TATGGCTAAG GTTCAAAAGC CATGGGCACT ATTTATATTT GGTATGATAT CACCACTTGT	3960
GATGTTTGCA GCTGGTCATA CCTACGTAGT TGTGGTTTTA TCACTTATAG TAATGATAAT	4020
AGCAGAATTA ATTAGAAAGA TTGGTAATTA TAATTCATTT AAATACAATA TGCTTTCTTA	4080
TGCAATCTTC AGCACATGGA TATGTAGCTC TTTAATGCAA ATGCTTTTAG CAAAAGAAAA	4140
ATATATGGAG TGGTCTTTGA TGAATATGGG AAAAGATTAT GTTGATGTAT TAGAAAAGTT	4200
AATAACTTAT CCTCACATGG CTTTAGTAGC CTTAGGTGCT TTCTTAGGAG GAATTCCTGG	4260
AGCATATATA GGCAAGGCTC TATTGAAAAA ACACTTTTCA AATGGATTAT ATTGTGTGGG	4320
ATACTTTACT CCTTGCCTAA TTTTATGGTG CTATCTGAAT TAAACCCTAT AGTTAAGATG	4380
TTTTTGAGTA TACCTATTGT TATTAGAATG TTTATTTTAC CATTTATGGC AGCAAGCTTT	4440
ATGATAAAGA CCTCGGATGT AGGCGCAATA ATTTATCGA TGGATAAGCT TAAGATTTCA	4500
AAGAATGTAT CCATACCTAT TCGCGTTATG TTTAGATTCT TCCCATCTTT TAAGGAGGAG	4560
AAGAAAAACA TCAAAATGGC TATGAGAGTA AGAGGGATAA ATTTTAAAAA CCCAGTCAAA	4620
TATCTTGAAT ATGTTTCTGT GCCACTACTC ATTATATCAT CTAATATATC AGATGACATT	4680
GCAAAAGCGG CAGAAACAAA GGCAATAGAA AATCCAATTG CCAAGACCAG ATACATTCCG	4740
GTAAAGATAC AGCTAATTGA TTTTGTTTAT GTTTTAGCGG TTGCTGGACT TATTGTGGGA	4800
GGCTTAATAT GGTGAAATA AAAAATTAA GTCTTGATTA TGGTGAAGAG CATATATTAG	4860
ATGATATATC ACTATCCATA GCCGAGGGAG AGTGCCTGCT ATTTACAGGA AAAAGTGGAA	4920
ATGGTAAGTC ATCTTTAATA AATTCAATCA ATGGACTAGC TGTAAGGTAT GATAACGCAA	4980
AGACAAAGGG CGAAATAATT ATTGATGGTA AGAATATAAA AAATTTGGAA CTTTATCAAA	5040
TCTCAATGCT TGTTTCAACT GTTTTCAAA ATCCTAAGAC ATATTTTTTT AATGTCAATA	5100
CGACATTAGA ATTATTATTT TATTTGAAA ATATCGGTCT TGCAAGAGAA GAGATGGACA	5160

1144

GGCGTTTGAA GGATATACTT GAGATATTCC CGATAAAAAA TCTTTTGAAC AGAAATATAT	5220
TTAATCTATC CGGCGGTGAA AAACAAATTC TTTGCATTGC AGCTTCTTAT ATAGCAGGTA	5280
CAAAGATTAT AGTTATGGAT GAGCCTTCAT CGAATTTAGA TATTAAAAGC ATAAGTGTTT	5340
TGGCAAAGAT GCTAAAGATA TTAAGAGAGA AAGGCATAAG CATAATTGTT GCAGAGCATA	5400
GAATTTATTA TTTGATGGAC ATAGTTGACC GTGTATTTT AATAGATAAA GGAAAGCTTA	5460
AAAAAAGCTTA TACTAGAAGT GAATTTTAA AGCTAGATAA AAATGAATTA AATGCTTTAA	5520
GTTTAAGAGA TAAAGAATTA AGTAAATTAA AAGTTCCTTA TTTAAAAGAA GGTGGAGAGT	5580
ATCAGATAAA AAATCTTAGT TACAAATTTA CTGATGATGA GTGTTTAAGC TTAAAGATA	5640
TTTCGTTCAA GCTTGGGAAA ATTTATGGCA TAATAGGATC CAACGGACGA GGAAATCAA	5700
CGCTTTTAAG ATGTTTAATA GGTCTTGAGA AAAAATCAAA AGAAGAAATT TATTTTAAGG	5760
GAGAGAAGCT ATCTAAAAA GAAAGACTCA AAAACTCTTC ACTTGTTATG CAAGATGTAA	5820
ATCATCAATT ATTCACAGAT GAAGTATTCA ACGAGCTTAG ATTAGGAGTA AAGAATTTTG	5880
ATGAAGAAAA GGCGAAAATC ATTTTAAACC CCAATTATTC ACCCCAAATC TAAAAACCAT	5940
CCAGAATCCT TGCCTTAGCT TAGATCCTGG ATGGTTTCTT TTTTCACCCA ATGGGTGTTT	6000
TTTACTAGAC AAAAAAGAGT TTCCCCTTTA TGGTATAAGT GTAGAAAAAA ACACAAAAAG	6060
AAAGGAACT CACATGAACA GTTTACCAA TCATCACTTC CAAAACAAGT CTTTTTACCA	6120
ACTATCTTTC GATGGAGGTC ATTTAACCCA GTATGGTGGT CTTATCTTTT TTCAGGAACT	6180
TTTTTCCCGT TGAAACTAA AAGAGCGGAT TTCTAAGTAT TTAGTAACGA ATGACCAACG	6240
CCGCTACTGT CGTTATTCGG ATTCAGATAT CCTTGTCAG TTCCTCTTTC AACTGTTAAC	6300
AGGTTATGGA ACGGACTATG CTTGTAAAGA ATTGTCAGCT GATGCCTACT TTCCAAAATT	6360
GTTGGAAGGA GGGCAGCTTG TTCACAGCCA ACCTTATCCC GTTTTCTTTC CAGAACTGAC	6420
GAGGAAACAG TCCATAGTTT GCGATGCCTC AACCTTGAAT TGGTCGAATT CTTTTTACAT	6480
G TTCACCAGC TG	6492

(2) INFORMATION FOR SEQ ID NO: 189:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 7174 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 189:

AACTGAAGGT AAAGGCTTCG ACGCAGAACG TGACGCTGCC CAAGCTGCCC TTGATGACCT 60



1145

TAAGAAAGCT CAAGAAGACA ACAACTTGGG CGACATGAAA AAAAACTTG AAGCATTGAA	120
CGAAAAAGCT CAAGGACTTG CTGTTAAACT CTACGAACAA GCCGCAGCAG CGCAACAAGC	180
TCAAGAAGGA GCAGAAGGCG CACAAGCAAC AGGGAACGCA GCGGATGACG TCGTAGACGG	240
AGAGTTTACG GAAAAGTAAG ATGAGTGTAT TGGATGAAGA GTATCTAAAA AATACACGAA	300
AAGTTTATAA TGATTTTGT AATCAAGCTG ATAACATAG AACATCAAAA GATTTTATTG	360
ATAATATTCC AATAGAATAT TTAGCTAGAT ATAGAGAATT ATATTAGCTG AACATGATAG	420
TTGTATCAAA AATGATGAAG CGGTAAGGAA TTTTGTACC TCAGTATTGT TGTCTGCATT	480
TGTATCGGCG ATGGTACCAG CTATGATATC ATTAGAAATA CAAACATATA AATTTGTAAT	540
ACCGTTCATA ATTGGTATGA TTTGGACAGT AGTTGTATTT CTTATGATCA ATTGGAATTA	600
TATAGGCAAA TACTAAGAAG AGACAAAAAT ATATAAATAT TTCTGTACTT ATAGGATATT	660
TAAATCAAA ATAAAGTTAA TTTACTTATT TGCAGAGGTT GCAACCCAGC CTCTGTTTTT	720
CGATAAAAAG GGACGGAATC TCATTTGTTT GGGTTTTGTC TCATCAATAG AAAGGAACAA	780
AGAGTGTTTG TAACTGAACA CGGGTTTCAG AATTTCTTAC TAAATATAAA AGAAAGGAAT	840
TGAACCCGAC CTAAATGGTG GTTCGATTCA GAACATCAAT AGAAAGGAAT AAGGGTGTTT	900
GTAACGTAAC ACGGGCTATG GACTGTGCCA AAAAGATAGT TTTTCTAGG ACGTAAGCGT	960
CCGTCGTCAA AACTCCTAGA TGGCTGTGTC CGTTTGACGC CCTTTGTATC TTGAATTATG	1020
AACAATACTG AATTTTATGA TCGTCTGGGG GTATCCAAAA ACGCTTCGGC AGACGAAATC	1080
AAAAAGGCTT ATCGTAAGCT TTCCAAAAAA TATCACCAG ATATCAACAA GGAGCCTGGT	1140
GCTGAGGACA AGTACAAGGA AGTTCAAGAA GCCTATGAGA CTTTGAGTGA CGACCAAAAA	1200
CGTGCTGCCT ATGACCAGTA TGGTGCTGCA GCGGCCAATG GTGGTTTTGG TGGAGCTGGT	1260
GGTTTCGGCG GTTCAATGG GGCAGGTGGC TTCGGTGGTT TTGAGGATAT TTTCTCAAGT	1320
TTCTTCGGCG GAGGCGGTTC TTCGCGCAAT CCAAACGCTC CTCGCCAAGG AGATGATCTC	1380
CAGTATCGTG TCAATTTGAC CTTTGAAGAA GCTATCTTCG GAACTGAGAA GGAAGTTAAG	1440
TATCATCGTG AAGCTGGCTG TCGTACATGT AATGGATCTG GTGCTAAGCC AGGGACAAGT	1500
CCAGTCACTT GTGGACGCTG TCATGGCGCT GGTGTCATTA ACGTCGATAC GCAGACTCCT	1560
CTTGGTATGA TGCGTCGCCA AGTAACCTGT GATGTCTGTC ACGGTCGAGG AAAAGAAATC	1620
AAATATCCAT GTACAACCTG TCATGGAACA GGTCATGAGA AACAAGCTCA TAGCGTACAT	1680
GTGAAATCC CTGCTGGTGT GGAACAGGT CAACAAATTC GCCTCGCTGG TCAAGGTGAA	1740
GCAGGCTTTA ACGGTGGACC TTATGGTGAC TTGTATGTAG TAGTTTCTGT GGAAGCTAGC	1800

1146

GACAAGTTTG AACGTGAAGG AACGACTATC TTCTACAATC TCAACCTCAA CTTTGTCCAA	1860
GCGGCTCTTG GTGATACAGT AGATATTCCA ACTGTTACAG GTGATGTTGA ATTGGTTATT	1920
CCAGAGGGAA CTCAGACTGG TAAGAAGTTC CGCCTACGTA GTAAGGGGGC ACCGAGCCTT	1980
CGTGGCGGTG CAGTTGGTGA CCAATACGTT ACTGTTAATG TCGTAACACC GACAGGCTTG	2040
AACGACCGCC AAAAAGTAGC CTTGAAAGAA TTCGCCGCTG CTGGTGACTT GAAAGTAAAT	2100
CCAAAGAAAA AAGGCTTCTT TGACCATATT AAAGATGCCT TTGATGGAGA ATAATACTCT	2160
TCGAAAATCT CTTCAAACCA CGTCAGCGTT GCCTTGCCGT ATATATGTGA CTGACTTCGT	2220
CAGTCGTATC TACAACCTCA AAACAGTGTT TTGAGCAGCC CGTGGCTAGT TTCCTAGTTT	2280
GCTTTTACT TTATAGATTT TTTAAGACTT TCCTAAGTAA TGACGGACGG TAGTGACCTC	2340
CTTCGAAGTT CCATACCTAA ACTTTGAACC TAAGTTTTAA AGTTTCCGGA CAGCTGAAAC	2400
CAAGCTGTTT CAGGTGTTTT CATTACGGCA GAAAGTCTTC GATTTAGTTG TGAAATGGTG	2460
AATGATACTC TTCAAAAATT TCTCAAACC ACGTCAGCGT CGGCTTGTC TGGGTATGGT	2520
TACTGACTTC GTCAGTTCTA TCCACAACCT CAAAACAGTG TTTGAGCTGA CTTGCTCAGT	2580
TCTATCCACA ACCTTAAAAC GGTGTTTTGA GCAGTCTGTG CCTAGCTTTC TAGTTTGCTT	2640
TTTGATTTTT ATTGAGTATG AATTACCTAA ATTATGATGC ATAGTTGATG GGATATATAT	2700
AATAGATTGA AATAGAATAT GAACAAATTG ATAAGAGGAT TTAAAGTAA TCTCTAACAA	2760
TGCTTTAGAA ACTATGGTGT GCTATTCTAA ATTCAATTCA CTATAACTTG TTTACGTTTT	2820
AAAAAAGAGC CGTCGGGCTC TTTTACTTA TCTTCAGTTC CCTGCATTTT TTTATCACA	2880
GCTAGTCTAG TCTGGATATC CTTTTCCAAG ACCTTAACT TGTAAGTCAA GTCTTCTTGG	2940
TATTCCTTGA TAAGTTCTTT TTGCTGGTTA ATGATTTGCA GGCTGTTTTG GATAATATCC	3000
ACATCGTCCT TGATAGCTTG AACGCGGTCA GTGGTATTCA AGACTTCATC TGTGATGGTT	3060
TGGCGATTTT TTGTAACCAG ATAAGTCCG GCTGCAGCTC CTGCAAATAG CAGTAGGTTG	3120
GATAATTTCA TAGCAACTCC TTAAGCGTTT TTGATGGTTT CAGCGACTTG AGCAAGTTTG	3180
TCAAAGCTG GTTCGTGGGC GATAAAATCA ATCTTGAGGT CATCGTCAGC ACTGTAGCGA	3240
GGCACAAGGT GAACGTGAGT ATGAAAACT GTTTGACCAG CGACTTCTTC ACAGTTGGAA	3300
ATGATATTCA TACCAGCAGC CTTAGTGACT TTCATGACTT TTTGAGCTAC TTTTGGTACT	3360
TGGGCAAAGA GTTGGCTGGC GCTCGTAGCA TCCATCTCCA AAAGATTGCG ATAGTGTCTT	3420
TTTGGCACGA CCAAGGTGTG TCCTAGTGTT ACTTGAGAGA TATCAAGAAA GGCAAGGACC	3480
TGCTCATCTT CATATACTTT TGAAGCAGGA ATTTCCCCTG CGATGATTTT AAAAAAATG	3540
CAATCTGACA TAAATCTAC CTCTACTGTA CTGAATTTG ATATAATATA GCTACATTAT	3600

1147

ACCAGATTTG	GAGAAAATAT	GTTAGAAATT	AAAAACCTGA	CAGGTGGCTA	TGTTCACTGT	3660
CTCTTTTTGA	AAGATGTGTC	CTTTACTGTT	GAAAGTGGGC	AGTTGGTCGG	TTTGATTGGT	3720
CTCAATGGTG	CTGGGAAATC	AACGACGATC	AATGAGATTA	TCGGTCTGTT	GGCACCTTAT	3780
AGTGGCTCCA	TCAATATCAA	TGGCCTGACT	CTGCAAGGAG	ATGCGACTAG	CTACCGCAAG	3840
CAGATTGGCT	ACATTCTCTGA	GACGCCTAGT	CTGTATGAGG	AATTGACCCT	CAGAGAGCAT	3900
ATCGAAACGG	TTGCTATGGC	TTACGGTATT	GAGCAAAAAG	TGGCTTTCGA	ACGAGTAGAG	3960
CCCTTGTTAA	AAATGTTCCG	TTTGGAACAG	AAATTAGACT	GGTTCCTGT	TCATTTTCA	4020
AAAGGGATGA	AGCAGAAGGT	CATGATTATC	TGTGCTTTTG	TGGTGGATCC	AAGTCTTTTC	4080
ATCGTGGATG	AGCCTTTCCT	TGGTCTTGAT	CCGCTGGCTA	TTTCTGATTT	GATTACGCTT	4140
TTGGAAGTGG	AGAAGCAAAA	GGGCAAGTCT	ATTCTCATGA	GTACCCACGT	GCTGGATTCTG	4200
GCGGAGAAGA	TGTGTGATGC	CTTTGTCATT	CTTCACAAGG	GAGAGGTGCG	TTCCAAAGGC	4260
AATCTCCTGC	AACCTACGTGA	AGCCTTTGAT	ATGCCTGAGG	CTAGTTTGAA	TGATATTTAC	4320
TTGGCTCTGA	CCAAAGAGGA	GGATCTATGA	AAGACTTGTT	TTTAAAGAGA	AAGCAGGCCT	4380
TTCGTAAGGA	GTGTCTTGGT	TATCTGCGCT	ATGTGCTCAA	TGACCACTTT	GTCTTGTTCC	4440
TGCTTGTCTT	GTTGGGCTTT	CTAGCCTACC	AGTACAGTCA	ACTCTTACAA	CATTTTCTCTG	4500
AAAAATCATG	GCCTATCCTT	TTGTTTGTAG	GAATTACGTC	TGTTTTACTT	TTACTTTGGG	4560
GAGGAACTGC	CACCTATATG	GAGGCTCCAG	ACAAGCTCTT	TCTCTTAGTT	GGAGAAGAGG	4620
AAATTAAGCT	CCATCTCAAG	CGTCAAACTG	GCATTTCCCT	AGTCTTTTGG	CTCTTTGTAC	4680
AGACCCCTTT	CTTGCTGTTA	TTTGCGCCTT	TATTTTTAGC	AATGGGTAT	GGCTTGCCAG	4740
TTTTTCTGCT	CTATGTGCTT	TTATTGGGGG	TAGGAAAATA	TTCCACTTT	TGTCAAAAGG	4800
CCAGCAAAAT	TTTCACTGAA	ACTGGACTGG	ACTGGGACTA	TGTTATTTCT	CAAGAAAGCA	4860
AGCGTAAGCA	AGTCTTGCTT	CGTTTCTTTG	CCCTCTTTAC	GCAGGTCAAG	GGAATTTCAA	4920
ACAGCGTTAA	GCGTCGTGCC	TATCTGGACT	TTATTTTAAA	GGCTGTTTCA	AAGGTGCCTG	4980
GGAAAGATTG	GCAAAATCTC	TATCTGCGTT	CTTATCTGCG	AAATGGCGAC	CTCTTTGCTC	5040
TCAGTCTTCG	TCTTCTCTTG	CTTCTCTTGC	TGGCGCAGGT	TTTTATCGAG	CAAGCTTGGA	5100
TTGCGACAGC	AGTGGTAGTT	CTCTTTAACT	ACCTCTTGCT	CTTCCAGTTG	CTGGCCCTCT	5160
ATCATGCCTT	TGACTACCAG	TATTTGACCC	AACTCTTTCC	GCTGGACAAG	GGGCAAAAGG	5220
AAAAAGGCTT	ACAGGAGGTA	GTTGAGGAT	TGACCAAGTT	TGTTTTACTT	GTGGAATTAG	5280
TTGTTGGGTT	GATTACCTTC	CAAGAAAAAC	TAGCCCTTCT	AGCCTTACTA	GGAGCTGGTT	5340

1148

TGGTTTTACT AGTCTTGAT TTGCCTTATC AGGTAAAACG TCAGATGCAG GACTAACATT	5400
GCTGATACGA CACTAAAAAA GAAGTTGAGT TCAGTCTGTC TCAACTTCTT TTTTGTACT	5460
ACAGGATAAT GGTTGGTCCG TAGAGACTTA TACTCTTCGA AAATCTCTTC AAACCACGTC	5520
AGCGTCGTCT TACCGTACTC AAGTACAGCT TGCGGCTAGC TTCCTAGTTT GCTCTTTGAT	5580
TTTCATTGAG TATTAACCTG GTCTTGACTT GGTCAAAGTG GAAGCGGTCA TAGGCCCGCC	5640
AAGCGGCGCG AGTTGGAGCA TCTGGATCAA GAGCGCTGAG TCCCATGAGA AGACTGGAAG	5700
TCTGGTAAAA TTTTCTAGT TCAATCAAGA ATCGATTATC CACTGTTTCA GCCTTGGCTA	5760
GAAAACCAAG AATAGAGTTT AATTGCTCCT GAAAGCGGAC GTCGTCAGCG CTGCGCTGTT	5820
TGCATGCTTG GTAGGCTTTG TTAAAGTCAG TAATCAAAGT ATGAGCTCTT TTGATGGGGT	5880
CTGTATCTGT CATGGGAATG CCTCCTTTAA TCTGGGTGCC AGTCTTACTT CTGGCAACTG	5940
TGTTTTGATA CTGTTAGTTT ATCACTTTTA ATTCTTTTTT TTTATTCAAA TCTTTAATTG	6000
TCATTGAAAT GTCTTGAATT GCGCTGAGTG AATTTTATGA TAAATAGTT GTAAGCTCAT	6060
CATGATGTTG TAGAAAATAA TCCTTTTAGG AGTTTTCAAA GACTGTTTAG GATTGGGTGT	6120
GCTTGGGCTA GACCTTTTCT GTTATTCTTT TCTTAGGAGG AGAATCCAAT GAAATATATG	6180
ATTATTGAGA CGCAGAAAAC AGTCTATAAA GTAAACATCG ACGATATCTA CTATATCCAA	6240
ACACATCCAA CTAAAGCCCA TACCGTACAG ATTGTTACAG AAGAAGCTAG TTTTAATATG	6300
CTTCAAAATT TAAGTAATCT TGAGAACCAA TGTGGGGAAA CCTTGATGAG ATGTCATCGA	6360
AATTGTTTGG TTAATCTTGA TAAATTAAAA TCGATTGATT TTCAAGAAAG AATCCTTTTT	6420
CTCGGAGAAG AAGGTCAATA CGCTGTCAAG TATGCCAGAC GTCGCTATAG AGAAATTCGT	6480
CAAAAATGGT TGAAAGAGGG AGAGTAAGAA GATGAGAATA TTTGTTTTAG AGGATGATTT	6540
TTCCCAACAG ACTAGAATTG AAACGACGAT TGAGAACTT TTGAAAGCAC ATCATATCAT	6600
TCCTAGCTCT TTTGAGGTAT TTGGCAAGCC GGACCAACTG CTGGCTGAAG TGCATGAGAA	6660
GGGGCCCCAT CAGCTATTCT TTTGGATAT TGAGATTCCA AATGAAGAGA TGAAGGGACT	6720
GGAAGTGGCT AGAAAGATTC GGGATCGGGA TCCTTATGCC CTGATTGTCT TTGTGACGAC	6780
TCACTCGGAG TTTATGCCCC TGTCTTTTCG CTACCAAGTG TCTGCTTTGG ACTACATTGA	6840
TAAGGCCTTG TCAGCAGAGG AGTTTGAATC TCGGATCGAG ACAGCCCTCC TCTATGCCAA	6900
TAGTCAAGAT AGTAAAAGTC TGGCGGAAGA TTGCTTTTAC TTAAATCAA AATTGCCCCA	6960
ATTTCAGTAT CCTTTTAAAG AGGTTTACTA TCTCGAAACG TCGCCCAGAG CCCATCGTGT	7020
TATTCTCTAT ACCAAGACAG ACAGGCTGGA ATTTACAGCG AGTTTAGAGG AGGTTTTCAA	7080
GCAGGAGCCC CGTCTCTGCG AGTGCCACCG CTCTTTTCTC ATCAATCCTG CAAATGTGGT	7140

1149

GCATTTGGAT AAGAAAGAAA AACTGCTTTT CTTT

7174

(2) INFORMATION FOR SEQ ID NO: 190:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 3207 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 190:

CCACCAGGGA AAATCATTGA AGTTGGTAGT CACCAAGAGT TAATGCAGGC GCAAAGTTTC	60
TACCATCATC TATTCAATAA ATAAGGAGAA TGTCTGAAT CCTAATCTTT TTAGAAGCGT	120
CGAGTTTTAT CAGAGACGTT ACCATAACTA TCGACAGTG TTAATTATAC CTCTTTCATT	180
ACTATTTACT TTCATCTTGA TTTCTCCCT TGTGCCCACA AAAGAAATTA CTGTTACTTC	240
CCAAGGAGAA ATCGCCCCTA CAGTGTCTATT GCCTCCATTC AGTCAACCAG TGATAATCCT	300
ATCCTAGCTA ATCATTTAGT GGCAAATCAA GTAGTTGAAA AAGGGGACTT ACTCATCAAA	360
TACTCTGAAA CAATGGAAGA AAGTCAGAAA ACTGCCTTAG CAACTCAATT ACAAAGACTT	420
GAGAAGCAAA AAGAAGGACT TGGAAATTTG AAACAAAGCT TAGAAAAAGC GACTGATCTT	480
TTTTCTGGCG AGGATGAATT TGGCTACCAT AATACCTTTA TGAATTTTAC TAAACAATCC	540
CATGATATTG AACTGGGTAT CACAAAGACT AACACCGAAG TTTCAAATCA AGCTAATCTT	600
TCCAATAGCA GTTCATCAGC TATTGAACAA GAAATTACAA AAGTTCAACA ACAAATTGGA	660
GAATATCAAG AGTTGAGAGA TGCTATCATA AATAACAGAG CACGCTTACC AACTGGCAAT	720
CCGCACCAGT CAATTTTGAA TCGTTATCTT GTAGCCTCAC AAGGACAAAC ACAAGGAAGT	780
GCAGAGGAGC CATTTTTATC TCAAATTAAT CAAAGTATTG CAGGTCTTGA ATCATCTATC	840
GCAAGCCTCA AAATTCAGCA AGCTGGTATC GGAAGTGTAG CAACTTATGA TAACAGTTTA	900
GCAACCAAAA TTGAAGTACT CCGCACTCAG TTTTACAGA CAGCCTCACA GCAACAATA	960
ACTGTGGAGA ATCAATTAAC AGAATTAATA GTACAACTAG ATCAAGCCAC ACAGCGTTTG	1020
GAAACAATA CCTTAACCTC CCCAAGTAAA GGTATCGTTC ATCTGAACAG CGAATTTGAA	1080
GGTAAAAATA GAATTCACAC TGGTACAGAA ATTGCTCAA TATTCCTGT CATCACAGAT	1140
ACAAGAGAAG TACTAATCAC TTAACAGTA TCTTCTGACT ATCTACCTCT ACTAGATAAA	1200
GGACAACTG TAAGATTAATA ACTGGAGAAG ATTGGAAATC ACGGCACCAC CATCATCGGC	1260
CAACTTCAGA CAATTGATCA AACTCCTACC AGAACAGAGC AAGGAAATCT CTTTAAATTA	1320

1150

ACCGCTCTTG CAAAACATC TAACGAGGAT AGTAAACTCA TCCAATATGG CTTACAAGGT	1380
CGCGTCACTA GTGTAACACT AAAGAAAACA TATTTTGATT ATTTCAAAGA TAAAATTTTA	1440
ACACATTCTG ATTAATTTTC AGATAACACT CTATAACTAT TTATTATCTT ATCAAAAAGG	1500
AGAATCATAA CATGGATAAG AAACAAAACC TAACTTCATT TCAAGAACTA ACAACTACCG	1560
AACTCAATCA AATTACAGGT GGAGGATTGT GGGAAGATTT ATTATATAAC ATTAATAGAT	1620
ATGCTCATTA CATCACATAA GAACTTCATC ATCCAATACA ACTATAAAAA AATAAGACCG	1680
AGAAACAAGT ACTCTCGGTC TTATTTTTC TCACTCTGTA TGTATCACAG TAAGTACCTG	1740
ACGAAAGACT TGATTTTGAC AGGTGGTATT TAGACTGGTA TTAGGATGGC TTTCCACAAT	1800
CTTCATGACG GTATAGAGAC CAACTCCTCT CTCCTCCCTT TTAGAACTGG CTCCAAAGGA	1860
GAAGATTTCA GAAATATCGA TGCCCTCTTC TTTGATGGAG TTTTCGATGA TAAAGGTCTC	1920
CTGTGCTCCA TTTTAAAA AGGCGATTGA AACATGAGGT TGAAGTACTT CCACACTGGC	1980
TTCAATAGCA TTGTCACAAA GGATAGACAC AATGGTTAGA AAATCAAGTA GACTCATCCC	2040
CTCGACCTGA ATCTCCTCAG GAACTTCGAC ATTAAAGACA ATGTTCTTAT CTCTGGCTTT	2100
TAAAAATTC CCTGCTAGAA GACTTTTGAG GGCTTTATCA CGAATATTTA CCAATCTGCC	2160
CAGGTCATAT TTATTGTTCT GCAATTTCTG ACTGGAATCC TTAAAGACGG AGCCATAGAC	2220
CTCTTTTATC TGCTCCATAT CCTCCTCTTC AATGCCGAGA CGTAAGCTAG TCAAGAGGTT	2280
GGTATAATCA TGACGAAAGC TCCGTACTTC CTTGTAAAGC TCCTCTATAT GCCGACTATA	2340
GCGTTCCATA TCTCTATAGC GCAGGGCCTG CTCTTGTTCC AATCTCTCAT AGAGTTTTTC	2400
CTTCAAATAG GTATCCAATT TCTTGATAAC CCCCATAAAA AAGAGTAGGT AAAAGACTAG	2460
GATGAGATGG CGAACAGTCT TTGATTGAAT ACTTTGTTCA TATTCAAAAA AAGACAGACT	2520
TTCCATGACT AGATAGTAGC CACCCATTAT CCAGTTAATC TGAGTCAGGG ACTTTTGAAA	2580
GGCTTTATCG AGAATCTCCT TTCTCAAGCT AGTAAATCG TAGTCCAACC ATTTCAAAAA	2640
AGCTAGAGAA ATGAAGAAAT TGAAAATTAT TATACATAAC CCAGTAAATG AGTAGCCATC	2700
ATATACTTGC CCTTGTCCTA AAAATGGAAG CACAAAATAG GAGACTCCTC TATAAAGAG	2760
ATTACCAAT ATCATTGGAA AGAGACCATA AAAGAAAAGG AGTTTTTTAG GAAGCCCTCT	2820
CAATAATAAG AAAGATAAGC CTATGCCGTA CAAGGGTTCC ATAAAATAAG ATAGGTAAAC	2880
ATTTCTACT ATATAGCTAA TCATCACAAA AACAAAGGCC AACAGTATCT TCAAAAAGAA	2940
GGCCTTAAAA ATCCTCTCGA AAGTAAGATC AATTCATCC ACCTTAAAGA AGATGACAAT	3000
TTCTAGTCCA TTAGTAACAA GTGTATACAA CAATATCCAA GCAATGTTCA TAAATTCTCC	3060
TAGCTCAGTG TAATTTATTG ATGGCCTCAG ACACTTCCTT GACCTTATAA CGGGCGATTA	3120

1151

GACAACTTCC ACCATTGGGA GAGAAGAGCA GTTTTCTTT CTTATCCAAA TGCACCACAT 3180  
 TTGCAGGATT GATGAGAAAA GAGCGGT 3207

(2) INFORMATION FOR SEQ ID NO: 191:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 10357 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 191:

CTGAATCAAG TGTACTGCAC CAGTTCGTGC ATCAGGCATA ACAACATCTA CAGATATAAT 60  
 ATTGTTTTCT GAGTCCGCCT CATAAGTTAA AATCATAAAT TTTTCGATAT TCGAATTTTT 120  
 AGTAGCTTGT TCAATTCTTT GAATCATTTT ATCAGAAACT AACTCCATCT GAATTGGAAA 180  
 GGAATGACTA TTTTCATCAT TTTTGTAGGA AGAATGTTGA TTAAGATAAA GTGTATTCAT 240  
 CTGAGCATAT TCAAATAAGT AGCCACTCTT ATTTTTTTGT ACCAAAGGAA ATTGGTTTTG 300  
 AAGTCGCTTC TTACCCTTTA TAATTAACAA TACTTTCCCA TATTTTTCTG TATTGTTTTC 360  
 AAATCTAAA TATCCCAAG TCTGTCCTGC TAATTGTAAT TTATACTCAA ACAAATCTGC 420  
 TGATGCAAAAT GCAGTATCAA TATGATTAGG TCGCGTCCAT GCATAACCAT TCGACACTAT 480  
 CATTGTCTCT CTTTTTTCTA GACGTTTCATC TACATAATCT TTTTGCCCTT TCATCAAAGT 540  
 ATCTACAATT TTTTGTGCCT CAAGCGAATC AAAGAGATCC TGATTCAACA TAATTCTTCC 600  
 TCCTCCAAAT ACTTTTAAAT GAATTATACC ATTTTCTTAA AGAAATTACT ACAATAATTA 660  
 TCTTTTTCTT AAAGTTCTGT GTCAGAGTAA TTTAGAAAAT TATATCTTCT ATAGTAAAT 720  
 CAATTAAAAA CTGAACAAAT TTATTGGGAA ATTCAAATCG CTTTCTGAAA ATATTTTAGG 780  
 AACCCTAGTG TAATATTCCA GATTCAATTC ACTATAAAAC TGACCTTTCT CCTGCAAAAG 840  
 AAAAAGGAAA GACTTCCTTT CGTGCCTTTC CTCTTACTTG CTACTTGTTC GATTATTTTT 900  
 GGTAAAGCTAC TGCTTGTCTG ATAAAATCCT GAATCGGCTC TCCTTGGTGG AGAGCTTTTA 960  
 CTATTTTCGA ACCGACGATA ACACCATCTG ACACCGCATT GAAGCGTTCC AGATCGGCTT 1020  
 GACTAGATAC ACCAAAACCT GTCAAGACTG GGATGTCGGC CACTTGATGA AGTTGCGCCA 1080  
 AGTGCTTGTC CAAATCTGCA CGGTAATTGC CTGATTTCCC TGTCACTCCA TTGATGGCAA 1140  
 CGGCATAGAT GAATCCCTCC GCCCCTTCAA TCAACTCTTT CTGGCGCTCA ATTCCTGTGG 1200  
 TCAAGCTTAC TAAAGGAATC AAGGCGATAT CTGTATTTGC CAAAAATGGT TCTACAAAGT 1260

1152

TGGCATGTTT	ATGAGGCAGG	TCTGGGATAA	TCAAGCCCTT	CACAGCTGTA	TCAGCCAGAT	1320
CTTTGACAAA	GTTCTCCACA	CCGTACTGAA	AGAGGGGGTT	GAAGTAGGTC	ATGATGACCA	1380
GTGGAATCTC	TGTTTCAATG	GTTTTCAAGG	TTTCAACTAA	AGCCTGGGTA	GAGGTCCCGT	1440
GGGCTAAACT	GCGCAAGCCA	GCTTCTTCGA	TAACAGGTCC	ATCTGCAACA	GGGTCTGAAA	1500
AGGGAATACC	CACCTCAATT	GCAGAGACAC	CCAAATCTTC	TAAAAAGTGA	ATTGTTTCAG	1560
CAAGACCGTC	CAAACCTTTC	TCGTGGTCAC	CAGCCATGAT	ATAGGGAACA	AAAATTCCTT	1620
TTCCAGCTGC	TTTAATAGCA	TTTAATTTT	CTGTTAGTGT	CTTAGGCATG	AGCTTCTCCC	1680
TTCTTTGCTG	CATCTGCTTC	CAAGCGGTCC	TTGACTTGAA	CCACATCCTT	GTCCCCACGA	1740
CCTGATAGGC	AGACAATCAT	AGACTTTTCT	GGTCCAAGTT	CTTTGGCCAA	TTTCACCGCA	1800
AAGGCGATAG	CATGGCTAGA	TTCCAAGGCT	GGGATAATCC	CTTCCACACG	AGACAAGAGT	1860
TGGAATCCTT	CCAAGGCTTC	TTCTGCTGTC	ACAGGGACAT	AGCTGGCACC	TTTAATATCG	1920
TGGTAGTGAG	AATGCTCTGG	ACCGATACCA	GGATAGTCCA	AACCTGCTGA	GATAGAGAAG	1980
GCTTCAAGAA	TTTGACCATG	GGCATCTTGG	AGCACATCCA	TGAGGGAACC	GTGAAGGACA	2040
CCTGGACGAC	CCTTGGTCAA	GGTAGCTGCG	TGGTGCTCTG	TATCCACACC	AAGCCCTGCT	2100
GCTTCAGTTC	CATACATAGC	TACTGACTCA	TCTTCTACAA	AGGGATGGAA	GAGCCCCGATA	2160
GCATTGACCC	CACCACCAAC	ACAGGGTACT	AGGGCATCTG	GCAGATCTCG	ACCTGTCAAG	2220
TCACGGTACT	GTTGTTTAGC	CTCTCGACCG	ATGACACTTT	GGAAGTCACG	AACGATTTCT	2280
GGAAATGGAT	GAGGCCCCAA	GGCAGAACCA	AGGATATAGT	GGGTATCGTC	GATATTAGCC	2340
ACCCATGAAC	GAAGGGCTGC	ATTGACCGCA	TCCTTGAGCA	CGCGCGAACC	ATCTGTTACA	2400
GCCTCGACCT	TGGCTCCCAA	AAGCTCCATG	CGGAAGACAT	TGAGGGCTTG	GCGTTTGACA	2460
TCTTCTTCAC	CCATGTAGAT	GGTACATTCC	ATGTTAAAGA	GGGCTGCAGC	AGTTGCAGTT	2520
GCCACACCGT	GCTGACCAGC	ACCCGTTTCT	GCGATAATTT	TCTTTTACC	CATGCGTTTG	2580
GCAAGCCAAA	CTTGTCCTAA	GGCATTGTTA	ATCTTGTTGG	CTCCTGTATG	GTTAAGGTCT	2640
TCCCGTTTGA	GATAAATCTT	GGCTCCGCCA	ATATGCTGGG	TCAAGTTTTT	TGCGTAATAA	2700
AGAGGAGTTT	CACGTCCTAC	GTAAGTGGCG	AAAAGCTGGT	TTAATTCCTC	TTGGAAACTT	2760
GGGTCTGCCT	GACTTTCACG	GTAGGCCTTC	TCCAACCTCA	AAACTGCTGT	CATCAATGTT	2820
TCTGGGACAA	AACGTCGGCC	GAATTTTCCG	TAAAATCCAT	CTTTATTTGG	TTCTGTATAT	2880
GCCATGCTTT	ACCCTCTCTA	TAAATCTTCT	AATCTTTTCA	TGATCTTTTT	GTCCATCTGT	2940
CTCCACTCCG	CTCGATACAT	CTACTGCATA	GGGAGTAAAG	TGTTGAATTG	CTTTTACTAC	3000
ATTATCTTCA	TTAAGGCCAC	CTGCGATAAA	GAAGGGCTGT	GCTAGTCCAG	TCGTATCCAG	3060



1153

TTGACCCCAA TCAAAGGGCT GGCCACTTCC TGCCACAGGG GCATCAAAGA GTAGATAATC	3120
TGCCTGAGAA TTGGGGACAT GCCCATTTC ATCTACCTGC ACAGCCTGAA TACTGGCACA	3180
AGGCAAATTC TCAAATAAAT CATCTGCCAC CTGACCGTGA ACTTGAACCA AGTCCAAGCC	3240
AACTTTGTCA ATCGCTTCCA GCAGTTCTAC CCGACTTGGT GAAACAAATA CTCCAACCTT	3300
TTTCACATCT GCAGGAATAA GCTTTGCCAA CTCAGCTGCC TCTTCTAAAG TCACCTGTCT	3360
TTTACTAGGT GCAAAGACAA AACCGATATA GTCGGCTCCT GCTGAAACGG CTGTTTCCAC	3420
CGCTTCTTTG GTCGATAGTC CACAAATTTT AACCTTTGTC AATCTGCAAC TCCTTGATTG	3480
TCTGGGCCAC ATTTTCTGCC TGCATAAGAG CTGTCCCTAC CAAATTCGG TTAAGTATG	3540
GGGCTAGTCG TTCCGCATCC TGCCCTGTGA AAATGGCAGA TTCAGAAATG TAATAGCGAC	3600
CTTCTCAAA GTAAGGGGCT AAATCTACAC TGGTCTGCAA GTCGACCTCA AAGGTAGTCA	3660
AGTTGCGGTT GTTGACCCCG ATAATCTCAG CACCAAGTCT GTGGGCTACC TCTAGTTCAG	3720
CTAGATTGTG AGTCTCCACT AAGACTTCCA GACCAAGCTC TGTCGCGTAG TCATACAGTT	3780
CCTTGAGGCG TTCTTCGGAC AAGGCTGCCA CAATGAGCAA GATAACTGTC GCACCTGCAT	3840
TGCGAGCGCG GATGATTTGC TTTTCATCGA TGATAAAGTC TTTGTTGAGC GTCGGAATCT	3900
CTACCTGACT GGAAATTTCC CGTAGATAAT CCAATGCCC TTAAAGAAA ACCTCATCTG	3960
TCAACACCGA AATCATCACT GCTCCGTTTT CTTCATAAGT CTGGGCCTGT TGCACAATAT	4020
CCACATCGAG ATTGATATCT CCCAACTAG GGCTAGCTTT CTTGACCTCA GCGATTACCT	4080
GCAAGCGGTC CTGATGATTC TTCAAAATTT CTGCCAAGCG ATAGGTCTGG CGCAGAGGCT	4140
GGATTTGCTC CAGCTTCATC TGCTCCACCT CACGCGCCTT CTGCTCTAAG ATTCGTGCTA	4200
AAAATTCCTG ACTCATTTTT GGTACTCCTG TAACAGTCTG AGTTTTTCAA GGGCCTTGCC	4260
TCTAGCAATC ACTTGACGGG CCAAGGCAAC CCCTTCCTTG ATGCTATCAA TCTTACCATT	4320
AGCATAGAAA CCAAGACCAG CATTCAAGAC TGTCGTTTCC AAGAATGGAC TTGCTTCGTT	4380
TTTCAGAACG CTAAGCAAAA TTTCTGCATT TTCTGAGCA TTCCCACCAC GAATATCTTC	4440
CATAGCATAG CCTTCCATTC CCAAATCCTC TGGAGTAAAG CTTGACAAGC TGATTTGCCC	4500
ATTTTCAAGA AGTGCAATCT TGGTTGTTCC GTTCAAGCCA GCTTCATCCA ACCCTTCTGG	4560
TCCAGCAACC ACGATGGCAC GTTTGCGACC CATATTTTTC AAAACCTGAG CTGTACTTTC	4620
TAGGAGTTCT GGACGACTAA TTCCAAGAAG CTGTGTTTCT AAAGCCATTG GATGAATCAG	4680
TGGACCAGTC AAGTTCATAA TCGTTGGAAT TCCAATTCC AAACGAGCTG GCATGATGTA	4740
TTTCATAGCT GGGTGCATAT TTTTAGCGAA GAGAAAGACG ATTCCAGTTT TATCAAAGAC	4800

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CTTACCTAGT TCAGCTGGTT TGAGGTCAAG ATTGATTCCC AAGGCTTCGA GGACATCTGC	4860
GGAACCAGAT TTAGAAGATA TCGAGCGGTT ACCGTGTTTG GCCATGTGAA TACCGCCACC	4920
AGCCAAGACA AAGGCTGCAG TTGTGGAAAT ATTAAACTG AAAGACTTGT CCCACCTGT	4980
ACCACAGTTG TCCATGGCAT CATGAATCTC AGTTGGAATA TGCTGGGCAT GTCCTCTCAT	5040
GACTTGGGCA ATGGCTGTGC GTTCTTCAGG TGTTCCTCCC TTCATCTTAA GAGCTAAGAG	5100
GAGAGAAGCA ATCTGCGCTT CAGTTACACG CCCAGTTACG ATACGCTCAA TGACATCCGT	5160
CATTTCCACA CCTGATAAAT TTTCAAATTT TGCTAGTTTT TCAATAATCT CTTTCATCCT	5220
AGTTTCCTCA CTTTACAACC TCCTCGATAA AATCCGAAT AGAAGACAAG CCGTCTGGCG	5280
TTCCAATGCT CTCTGGATGG TACTGGAAGC CATAAATCGG TAGGTTTTTA TGTGAATCC	5340
CCATGATGGC TTGGTCATCA GTCGAACGAG CTGTCACTTC AAAGTCTTCT GGCATTTCTT	5400
CAATCAAAAT ACTGTGATAA CGCATGACCG CACGGCCATC CTCAATACCT TGATACAAAA	5460
CAGATGGCGC TTCAAAGTTG ATATTGCTCT GTTTCCTCATG CATGACTTTT GGAGCCAAAC	5520
CTAGCTTACC ACCAAAGACT TCTGCAATGG CTTGGTGGCC CAAACAAATC CCAAGAATCG	5580
GCTTCTTGCC TGCAAAATCA CGAATCATGT CTTCCATCTT TCCAGCATCA ACTGGCCAAC	5640
CAGGACCAGG AGAAAAGACC AGACCATCTG CTTTTTCAGC TTCTTCATAC AGCTTGAAT	5700
CATCATTTCT CAGAACCTGA ACTTCTGCAA AATCCCAAT GTATTGGGCC AAGTTATAGG	5760
TAAAAGAATC ATAGTTGTCA ATCAATAAAA TCATGGTCTT AGTTCTCCAA TTCTAGTCAT	5820
AGATTTTGCT TTGTTAATGG TTTCTTGTA TTCGTTTGG GCGATAGAGT CGTAGACAAT	5880
CCCTGCCCCA GCCTGCACAT AGGCTCTTTG ATTTTGTAGA ATCATGGTTC GGATGGCGAT	5940
GGCCAAATCC ATATCACCCG TCGCAGACAA GTAGCCGATT GCCCCAGCGT ATACTCCCCG	6000
TTTTTCCGTT TCCAGTTCAT AGATACGTCT CATCGCTCGA ATCTTTGGTG CTCCAGAAAC	6060
GGTTCAGCA GGAAGCGTTG CTTTCAAGGC ATCCATGGCA GTGAGTTCTG GAAGCAAACG	6120
CCCCTTGACT ACGCTGGTCA AATGCATGAC GTAGCGGAAG AGCTCCACTT CCATATACTT	6180
AGTGACTTGG AACTGGTTCG TTTTCAAGAT GCGGCCAATA TCGTTACGCC CCAAGTCTAC	6240
CAACATTGCA TGTCTGCTG TTTCTTCTC ATCAGAGAGG AGGTCAGTCG CCAAGGCCTT	6300
GTCTTCTTCA TCCGTAGCCC CTCTGGTTCG CGTCCCTGCA ATCGGATTGG TTGTACAGAT	6360
GCCATTTTTG ACAGAAACCA AACTTCTGAG ACTAGCTCCG ATGATTTGAT AATCCCCAAA	6420
ATCATAGAAA TAAAGGTAAT TAGAAGGATT AGTCACGCG AGATTTCTGT AGAAGTCAAA	6480
TGGATTTCCA GTAACCTCTG CTGAAAAACG CTGGCTGAGT ACACATTGGA ACATATCTCC	6540
GTTACGAATC AAGTCACGAG CTGTTTCTAC CATTCCTCA AACTTATGTG GAGCGATATG	6600

1155

CGGTTTGAAG TCTAACGGAG ATAGATCCAA ATCTTCAAAT TCATTGGAG CAGGAATGCG	6660
TAATTCCTCA AGCACTTGGT TCAAGGATTT TTCCAAGGCC TCTTGACTGC GCTCACTATA	6720
AAGTGCATCC TCTATGACAT GTATCTTCTC CTTCTTGTGG TCAAAGACCA TATAGCTCTC	6780
ATAGACAAAG AAATGCATGT CTGGCGTCCC AATTGTATCC TCAGGGATTT GACCAATTTT	6840
TTCATAAAGC GAAATCATAT CGTAACCCAC AAAACCAATG GCTCCACCAC CAAAAGGTAG	6900
CTCTGAGTGG TGCTGACTCT TATGAATCAC TTCATAAAGG AAATCCAAGG GATCCCGATC	6960
AATCACTTGA CCATTTTGAT AGAGAACCCC ATTTTCAAAC TTAATCTCAA AAATGGATT	7020
ATAGGCTAGG ATAGAAAAAC GAGCTGTTTC CTTGTCTCTC GGAATACTCT CTAAAAAAC	7080
CTTATGTTGC CCCTTTAAGC GCATATAAGC CAAGATTGGT GATAAGACAT CTCCATGAAT	7140
GATTGCTTCC ATTGTAATTT CCCTTTCAGT TCTACTTCTA GTCCGTGGTG ACTGTATGAA	7200
AAATCCCCAC GCAAAATAAC TTGCGTGAGG ACGAAATTCG CGGTGCCACC TCAATTATAG	7260
GATTTCTCCT ATCTCTCATT CCTGTCTCAG ATATCTCCTG TAACAGGCTG TGCGATAAAG	7320
GGCACTCCCT TGAGAATGAT GTTTTCTTCT CTCGTTTCAG ATGAACCCAA CTTTACAGCT	7380
TTCTCTGCTT GTTTTCAGCA ACCACAAGCT CTCTGTGAGA GAAAGAACTG TAATTTTTCC	7440
ATCTATTATT TTTTAGCTTC TAGTAGTCTG CAATCGCAGC TAGGTCCTTG CCTCCACGAC	7500
CAGAGACATT GATGAAGAGA TGTTCATCTC GGTACACCTT TATACTCTTC GAAAATCTCT	7560
TCAAACCGCG TCAACGTCGC CTTGCCGTAG GTATGGTTAC TGACTTCGTC AGTTCTATCT	7620
GCAACCTCAA AACAGTGTTT TGAGCTGACT TCGTCAGTTC TATCCACAAC CTCAAAACAG	7680
TGTTTTGAGC TGACTTCGTC AGTTCTATCC ACAACCTCAA AACAGTGTTT TGAGCTGACT	7740
TCGTCAGTTC TATCCACAAC CTCAAAACAG TGTTTTGAGC AGCCTGCGGC TAGTTTCCTA	7800
GTTTGCTCTT TGATTTTCAT TGAGTATTAC TAGCTTTTTT CGTATTAGTC CAGCCTTTTT	7860
GTTTGCTTTT AGTAGTAGGC ATGGAGCTGT AGATAGAACT CAAGTTCATC AAAGCGACTT	7920
AAGGCCCTAA TAAAAGATAA ACCAAACGAC GGATAGAAAA AAGCCACAC ACAGAATATA	7980
CTCCCGTGTG AGGGCGTTGG TAACGCGGTG CCACCTCAAT TATAAAGGGA CTATCCCTTT	8040
ACATCTCTGC CTTGTTTAAC AACAAGCTGC ACTGTAAGGT GTGCGCACCG AATTTTCATT	8100
GTTTCAAATT CATTTTCAA ATCAGCCAC TTCTACTACT TCCAACCACC TATTCACAAT	8160
CACCACAGGC TCCCTGAAGA TCAAAAATAG TTACTTTTCT GATTTGTTGA ACTTATTTTA	8220
ATACTTTGTT TTTCTTTGT CAAGACTTTT TTACGATTTT TTTGAAAATA TCATTGGAAT	8280
ATGACCATGT CTTCTTAGA TCGAATGA ACATGTCCCA CTTCTTAGAA ATTGGATCCA	8340

1156

ACTCAATAGA AACTGAATGG AGGCTAAACA GAACTTATTT TAGAACACTC CATCTTTTCC	8400
ACTAGGATTT TCAAGAATTA AACAACTACTA GAACTCTGT CTCCTAACAA ATTTAGGAGA	8460
AACTTCAACA GATGTGACAC TTTCCCCTTT AATAATTGCT AAAACACCTT CTATCATTTT	8520
TTTAGCCAAT TTAACATAAT TGGGAGCAAT TGTAGACAAA GCTGGAGTAT AATACTGAGA	8580
AATAGGAATA TTATCAAATC CAATGATAGA AATATCATCT GGAATAAGAA TTCCTTTTCTC	8640
ATAGCACGCA CGAATCAAGC CCTGAACCTT TTCATCTCCT GAAACAAAAA TAATGTCCGG	8700
ATAATTTTGG GTAGTCAAGT GCTGCATTGC ATAAGAATAA ACTGAATCAA TTGTAGATAA	8760
GCCATAAATG ACTTTTAAAT CCATAAAGTA ATTTTATCA TTCAGAAAAG AACGCACACC	8820
TCTTTCACGA TCCTTATTAA CATGGGATTG TCCTCCCATG AGCAACCACA TATTTTAA	8880
TTTTTCTTCA GTTACAGCTT TCATCATATC ATAAGTAGCT TGAAAATTAT TATTAGATAC	8940
ATAGACTACT CCAGACGTTT GAGATTACAC GAAAACAAGA AAAGGCATAT GGTCTTCTT	9000
TAAATACTGA ATTCTGATAT CATCTACACT TTCATAAAAA ACAATAACAC CATCTACTAG	9060
GCTACCTGTG CTTGATATAA TTGAATTACT AATTGTATCC TCCTCTCCAA AGTACTCAAC	9120
TATAGCATTG ACACCAAATT CTTTACACGT CCGTAACACT TTATCTAACA GCGTATGAAA	9180
CCAAATTAAA GGAAAAGAGT CGATTTTTTT TACAGAAAATC AATATATTTA TAGCTTCTTT	9240
TTTAGTTAAA TTTTTTGCAT ACGCATTGGG AATATACGAC AATTCCTCTA TAACTTTTGT	9300
AATCGCTTGA TAAGTTTCTT CTTTAACATT TACTCCACCA TTAATAACTC GTGAAACTGT	9360
TTTTGGAGAA AAACCTGATA AACGTGCAAT ATCATAAATA GTTACCTTTT TCCCATTAT	9420
ATTTTTCATT TCAGTCCTCC ATTACGAACA TTCTAATATT ACTATACAAT ATTTAATTTT	9480
TTTTAACAAG AGAATTTAGT AAATTATTTA AGATCCACAA ATTCACAAAA TTAATTTTAC	9540
AAATATTCTT CCCCTTCAAA AAAGTTTAAA TTGCATTTCA CACCTTTTAT TTTAAGAATG	9600
TTTCCAACCT CACGACAAAT AAATTCATAT GAGAAAAAAC TGCCATAAAA TTGTAGATTA	9660
ACTTTTTCAG TAAAATGTGT AGGATTTATA AAAACATATA ATAGCCTGTC AATGTAACAT	9720
TTTAACATAG AGTTAATTTT TTCTTTAAAG ATAACATTGT TTATCAACTC ATCAGGAGGT	9780
AAATGAAAGG CAAACACCAT TTCACAAATA TCATAAAAAG AAATAAATTT GTATACTTGT	9840
ATCAACAAT TATTATCAAA ATATTCTATT TTACCTAAAT CAAAATTGAT TTTATAATCT	9900
TTCATAAAAA CCTCTGAGCA AAAATCTACT CAAAAATTAG ATGATTAAAA CATCTAAAAA	9960
GCAAAAGGAC AAAAACATCT GTCCCTTTGT TTAATAAATT TCAGCTAATT TCTTCGACAT	10020
AAATAACACC TACAATATTA GCAATTTCTT CCATCAGTCG AAGATGTTCA AATCTACCTG	10080
ATAATCCAG AGTAATAAAT GACGCTATTT TTTGTCCGG AACATCAAAG TATTCAATTC	10140

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TGTCAGAATT AACATCTCCA AACGCTGTTT TTGAATCGGT CATTCTGATA CCATTTTCTG	10200
CACAATAAAC CAATACACGA TTATAGGCTT CTGTAGATTT AACCACTATA TACAATTCAA	10260
TCATTTTAGA ACGATTTTGC AGATATTTTT TTAGTGGTTG GAACATGGAT ATCACACCCC	10320
AAACAGAAAT GGCTACTAAA AGAGCTCCCT CATAAGG	10357

(2) INFORMATION FOR SEQ ID NO: 192:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6867 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 192:

CGGGACATTC TCAATCTTCT GTCTTTTGT TTTCTCTTCT TTCTATGATA CAATGGAAAA	60
AATAAATTCA AAAGGAGTTT TTTTATGACT TATCCAAATC TCTTGGACCG CTTCTTAACC	120
TATGTTAAGG TCAACACGCG CTCTGATGAA CACTCTACTA CTACTCCAAG TACACAGAGT	180
CAGGTTGACT TCGCAACAAA TGTCTTAATT CCTGAAATGA AACGTGTTGG ACTGCAAAAT	240
GTTTACTATC TACCGAATGG TTTTGCTATT GGAACCTTGC CAGCCAACGA TCCGTCCTTA	300
ACACGTAAGA TTGGTTTTAT ATCGCACATG GATACTGCTG ATTTTAATGC TGAAGGAGTC	360
AATCCACAGG TAATTGAAAA CTACGATGGT GGTGTGATTG AACTAGGGAA TTCTGGTTTC	420
AAACTCGATC CAGCTGACTT CAAGAGTCTT GAAAAATATC CAGGACAAAC GCTCATCACA	480
ACAGATGGAA CAACCTTGCT AGGTGCTGAT GACAAATCAG GAATGCTGA AATTATGACA	540
GCCATTGAAT ATCTAACTGC TCATCCTGAA ATTAAGCACT GTGAGATTCG TGTTGGTTTT	600
GGTCCAGATG AAGAAATCGG TGTGGTGCC AATAAATTG ATGCAGAAGA TTTTGATGTG	660
GATTTTGCCT AACTGTTGA TGGTGGTCCA CTAGGTGAAC TTCAGTACGA GACTTTCTCA	720
GCCGCTGGTG CTGAATTGCA TTTCCAAGGT CGTAATGTCC ACCCTGGTAC TGCCAAAGGG	780
CAGATGGTCA ATGCCCTTCA GCTAGCAATT GATTTTCATA ATCAACTTCC AGAAAATGAC	840
CGACCTGAGT TAACTGAAGG TTACCAAGGT TTTTACCATC TAATGGATGT GACAGGTAGT	900
GTTGAGGAGG CGCGTGCAAG CTACATCATT CGTGATTTTG AAAAAGATGC CTTTGAAGCG	960
CGTAAAGCAT CCATGCAATC TATCGCTGAT AAGATGAATG AAGAACTTGG GAGCGACCGT	1020
GTCACCTCTCA ACTTGACAGA CCAGTACTAC AATATGAAAG AAGTCATTGA AAAAGATATG	1080
ACTCCAATTA CCATTGCTAA AGCCGTTATG GAAGATCTAG GTATCACGCC TATTATCGAA	1140

1158

CCAATCCGGG GTGGAACAGA CGGCTCTAAG ATTTCTTTTA TGGGAATCCC AACTCCGAAT	1200
ATCTTTGCAG GTGGCGAAAA TATGCACGGA CGTTTTGAAT ACGTTAGCCT TCAGACTATG	1260
GAACGTGCAG TTGATACCAT CATTGGCATC GTAGCTTATA AAGGCTAAAA AGACGAGGTA	1320
GCTCAGCTAC TTCGCCTTTC TTTTATTCT ACTGGTTTTT CTTGATTTCC AGTAGTTGTA	1380
GAAGATTCTG TTGTTTCATT TTCTGAAGTT GATTGAGCAG GTTTAGAATC TCTTGATTG	1440
CTTGGTTTGT TTTCGTCGCT AGCAGTTTCA ATGTTAGATT CTGCAGTTGC GTTTGGTTGG	1500
TTCTCAGCAC TGGTGTTATC ACCATTTGCT TCAGCATTTT TTGCTGGACT TGTTCCTCA	1560
CTTGCCTAG CTTTGTGACTG GATTTGATGA TTCAAACTA GAATAGCTTT TGTGATTC	1620
AGTAAAGCTG TTTTGTCTTT ACTCTTAGCA GAAAGTTGAT CTAATAATGC ATCCACCTTA	1680
TCAAAGTCCG CATCAGATCC ATTATTACTT TCTAAATAAG AGTGAAGCGA CATGAGAATA	1740
TCGTAGAGTT TTTGATAGAG TACAAGTGTC TGAGGATCTT GCTCAGCATT TTCCTTTCT	1800
TGTTGAAGGG CGCTAGCGAT ACGAGTCAAG ACATCTTTTA CCTGACTGTT TACTTCATCC	1860
AAGTCTGCAT CAGCCTTGTT TGTGGCAGCT TTTAGATTTT CTAATTCTTC TGCCAAGGAT	1920
TGTCTGATTC CTTCTTCATG GATTTGTTCC AAGAGTTGAT TTGCCTTGCT CAAAAGACTT	1980
TCTACTTCTT CCTTGCTATC TGTCGCAGAT TATTGGTTGC TATCTACCAT GTACTCTAA	2040
AACAGGAGAG TTATAATCCA AGATTACAAG GCCTTACAGA AATAAGAAAT CCAGATAAGA	2100
CAATGTTCTG CCAAGACGCT ATTCGCTTCG CACAGCAGCA CGGATTCAAT ATGCTTTAAT	2160
TTTAAAGTTT AGGTGTCAAG ACCTCTTTTT AGTGTGCCCA AAATTTAGAG AAGTAATCAA	2220
TCAACTAACT TTTATTTTTT TCAAACCTTC AGTAACTGA CCTAAAGCTA ACTCAATCTG	2280
TCTTTGTAGA TGCTTCTGCT ATCAGCTAGA AGTTGATCTA CTTTGGCCAA GACTGCCTTC	2340
TCATCAAAAG TTCCAGGTTG ATAGTTGGAT TGCAGGGATG GAATCTTGTT TTTCAAAGCC	2400
GCTTCATATC CCTTAGTTTG AACCTTGATG TAGTGATTGT GGTGCCCATG AGGAATCACA	2460
AAACCTTCTG AATCTTCACT TATAATTCGA TTGGCATCAA AACCATGACC ATCTTCTTCC	2520
TCATGATGGA CATGTAGTGA CGGATTACTT AATACAGAAC TAGAAGAACT TCCTACCTCT	2580
TCCGTGTTAG AGTGTGATGG GGGATTGTTA AGAGATGACT TAGGAATATA GTGATAGTGA	2640
TCCCCATGTC TTAATATATA AGCATCACCT GTATCTCTGA CAATATCATT AGGGTTAAAG	2700
ACATATGTGG CTGCTAATTC ACCTGCCGAC AAGTCACTCT CAGGAATGAA ATGATAGTGA	2760
CCACCATGTG GTACTATAGT AGATTGAAAT AGAATATGAG CAAATTGATA AGGGGATTTT	2820
AAAGTAATTT CTAACAATGA TTTAGAACT ATGATGTGCT ATTCTAAATT CAACTCACTA	2880
TATATAACCA TCATCGGTAG TATAACGTCC CTGTAATTTT GCTACAGATA CTTCTGCACT	2940

1159

AGCTCCTTTA TCGTCTTTAC CATGTTCTTG TTTTGGCGA TTGATTTCAT CTTTGTTCG	3000
TACATTTTCT GCATGAGCTT GATCTTTAAG GTAAACATAA TACTTTCCAT CTACCTTAAT	3060
AATATATCCT CCCTTAACCT AACTGACGAT ATCTTGATCT TTCGGCTGAT AGTTGGGGGC	3120
TTTCATTAAT AGCTCTTCAC TAAAGAGCGC ATCAAAAGGA ACTTTACCAT TATAGTAGTG	3180
ATAATGATCG CCATGAGAAG TTACATAACC TTGATCTGTA ATCTTAATAA CAATTTGTTT	3240
TGCTTGAAAT CTTCTTTTTT GACTAACCTA GTCTGGAGTC AAATTTTCAG TCTTCTTAGT	3300
GTCTTTATTA CTGTTTACAT ATGAAACACG ATTTTATCT GTATTGGCCT GTTAGCTATG	3360
TTGGTTCAGA GCATAAACAC ACAGACTTAA GGAAAGGATA ACAACAGATC CAGCTGCTAT	3420
ATATTTCTTT TTAATTTCA TAATTACCTC ATTTCTATAA TTATTTATAT GATGCTTCA	3480
TTATTAAATG ATTAAATAA TTAATTAACC AATTAATTAA CTAGTAAATA TTCCACCTCT	3540
TTTAAAGTTG TATGTCAAGA AATTTTATAT ATTAATAATA AAATGAAATT CTCCCAAAGT	3600
CAGAGTTTAA TTTCTAACTT TTGAGAGAAC TTCATTTTTG ATTCAGACTT TTTCTACTGC	3660
TATTCCTTAC GCTATGAGAT CAGATAAATT CTTTTTATC ACTTCTCCAC TTGGCAATCT	3720
TAATTCAATC GTTCCATCCA TATTGAATAT AACACTATCT AAGCCTAATC CGTAACTAGC	3780
TGTAAATTTT TCTAATTTTT CTGTACAGG ATCTACTGCT GGAGCTTCCT CTAATGCTGG	3840
ATCTAACATA GGGTCACTCC CCACATTCCC TTCTGGATTC AACATTCCAT TATCCGTTGA	3900
GTTTTCTGGT TTTACAGGTT TTTCGTTTGG TGCCTCTGGT AAAGAATCTG CTGGTTTATT	3960
TTCTGTGGT TGGTTCTCAA CTGTTCCAGT AGATACTTTT CCATTTTCAG ATGGTTTATT	4020
TTCAACATTT CCTTGAGGTG CTTCTCCTGT AAAATCTGCC ATATTCTTTT TAATGACTTC	4080
TCCCGATGGT AAATATAATT CAATTGTTCC GTCCATATTA AACAAGACAT TTTCTAGCTT	4140
CATCCCATAA CTTTCAGCAA ATTTTGCTAC TTTTCTTGT ACAGGATCCA CTGTAGGAAC	4200
TTCTTCTAAC GTTGAATTAC TAGTACTATT CCCAGTTTCA GAAAGTTTTT CTTTTTCTAC	4260
CTTCTCACTA GTCTTTGGTT CTTCTACCTT TTCATCAAGT TTTAAGTTTT CTTGTGCTTT	4320
ATTCCTTTTA AATTGTGGTA GAATACTGG TTTATCAGT TGATTTTCTT TTTCCAAGAT	4380
AGTACTTCC ACAATATAAG TCGATTGATT GTCCAAATAA GCATTTGCCA TGAAGGTAC	4440
AGGAATTTTA TTTCCGGCCG TTCTGGTTGT TCCTTGGTTT AATTCGGAA TCGGTAATTT	4500
GATTTACCA ACTTTATAGT TATTTTCTAA ATAAGCATTT CCATGAAATT CATCAAACAC	4560
TCTGACTAAA GCATCAGTTC CTTTAGGCAC TGCAAATTGA GGGTCACTC TTAAATAAGT	4620
ATCCCCTGCA TGGAAAGGAT AGAAAATCGT TTGACTGGCC ATTTTGTAAG CTAAAGAGGT	4680

1160

TGGAACGTGA AATGTACCAT CATAACTTAC TTCTGGATAA TCTTTTGAAG CGATAGTATA	4740
CTTAAATGTT TGTCTGGTA AATAAGGTG ATCTAATTCA AAGTTTGCAA TATTCCTAC	4800
TCCTTCTCCA AATACTTTAC CAGATACTTT CTCCAATACT TTCCATCTG GTGTTATTAA	4860
TTTTACTAGC ATATTGATAC CTAATTTTTT CTCCAATTCA GCGGAAAAAC TAAAAGAAAC	4920
GCGTTTTTGA CCATTGGCTA GAGTAAAGTT TTGATTATTA AACGTACTAT TTTTAAACAA	4980
ATTAACAACA TTCGTTAATT CTTCTCCAGT ATAAACTTTA TTCCCTTCTT TTTTAGCAAC	5040
TCCTTCTTCG GGTTTAAACA GTTCATAGTT ACTGTGAGAA TGACCAATTC CAACCGGTTT	5100
ATGTTTCATCA ATCGGATCTG CATGATGGTG ATCTCCATGC GGATAAATAA TCGCATTTTT	5160
TTCTTTATTC ACGACAATAC TTTCACGTTT GACACCATAT TGTTTCATAA TGCCAGCAAT	5220
TTTTTCTTCG ATTTTTTTAT CTAATCTTTT CATTTCTTTG GCATTACTTG GATAATCCTG	5280
TTCATGAGAT GACAAAGAAT CTAATCCATT ATGACTAGTT TTAACCTCCT CTAATGTTT	5340
TTGCGCASCT TAATTTGCTC TTCTGTCAAG TCCTTCTTGA AGAAATAATG ATTGTGGTCT	5400
CCGTGACTCA TGACAAAACC TGATTCATCT TCAGCGATAA TACGATTAGC ATCAAATCCG	5460
TATCCATCTT CTTTCATGTT CTCATGTGAA GTTCCTGGAT TGATTGGAAG AGATGGAGAA	5520
GGTGTGCTA GACTATTGTT TGAAGAGTC GGTGGCCAA TTTGATTGA TTTTGAATG	5580
TAATGGAAAT GATCACCATG TCTTACAATA TAAGCTGTAG CCGTTTCTTC AACGATATCT	5640
TTTGGATTAA AAATATAACC ATCAGATGCT GAAGAGAGCT CCTTACTTGT CGTTAAAGAA	5700
GAAGGATTGC TTGAAAGACT GCCTAGACTA GACACTACTT CATTAGGTTT TGCATTTGTA	5760
GAACTGTAG AACCAGTTCC ACTGATAGGC ACCATTCTGG CAATCTTTTC TTCTAAGGCA	5820
GAAAGCTTGC TGTAAGGAAT AAAGTGGTAA TGGTCGCCAT GCGGAATCGC AACTCCATTT	5880
GGTGTACGAC TGATAATCTT AGCAGGGTCA AAGACCAGGC CATCTGATTC ACTGTAACGT	5940
TGGCGCTAG GTGAATCATA GAGTTCCTTC AAAAGACTCT GGAGATTTTC AGATTTATTT	6000
GCTGGCTTGC TAGTTGATCC TTTTGCTACA GATTGCGTGT TATTGTCACT AGCTGTTGAA	6060
GAATAGCTTA ACTGACTCGG TTGCATATTT TTTCAGCCA GATGTGCTTT AGCTGCTGCT	6120
AATTCAGTAG CAGATAAATC GCTTTTGGGA ATGTAGTGAT AGTGACCTCC ATGAGGAACG	6180
ATATAAGCAT TACCCGTATC TTCGATAATA TCAGTGGAT TAAAGACATA ACCATCATTT	6240
GTCGTATATC GTCCCTGAGA CCTTGCTACA GCAACATTAG AGTTAACCTT CTCATTATCT	6300
TTGACATGTT CTTGTTTTTG ACGATTGATT TCATCTTTAG TTCGAACATT ATCAGCATGA	6360
GCTGCATCTT TCAGGTAGAC ATAATATTTT CCATCGACCT TGATGATATA ACCACCCTTG	6420
ACTTCATTGA CAATATCAGC GTCTTTAAGT TGATAGTTTG GATCCTTCAT CAAGAGTTCT	6480



1161

TCACTAAAGA GGGCATCATA AGGAACTTTC CCATTATAGT AATGATAGTG GTCACCGTGT	6540
GACGTTACAT AGCCCTGATC TGTAATTTTG ATTACAATTT GCTCAGCCTG AATTCCTTCT	6600
TTCTGGCTAA CCTGGTCTGG TGTCAAGTTT TCACTTTTCT GACTTGACTG GCTGCCATCC	6660
ACATAAGAGA CACGATTATT GTCCTTATTT TCCTGCGAAC GATGCTGGTT TAGTGCATAG	6720
GCACATAGAC TCAAGGATAC GATAACAGCT GATCCAGCTG CTATATATTT TTTACTAAAT	6780
TTTATAAATC CCTCATTTCA ATAAATGATG AAGTTTTTTC TCAACTTCTT TTACTTTATT	6840
AAATAGTTTT CTAAACCCCG GGGTACC	6867

(2) INFORMATION FOR SEQ ID NO: 193:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 999 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 193:

CGTTCTAAAA ATGCAGTACG TTTGATTGAG AAATCAGTTA AAGGTATGCT TCCACACAAT	60
ACACTTGGAC GCGCTCAAGG TATGAAGTTG AAAGTATTTG TTGGAGCTGA GCACACTCAC	120
GCTGCACAAC AACCAGAACT TCTTGACATT TCAGGACTTA TCTAAGGAAA GGAACAATAA	180
AGTATGTCAC AAGCACAATA TGCAGGTACT GGACGTCGTA AAAACGCTGT TGCACGCGTT	240
GCGCTTGTTT CAGGAACTGG TAAATCACT GTTAACAAAA AAGATGTTGA AGAGTACATC	300
CCACACGCTG ACCTTCGTCT TGTCATCAAC CAACCATTCG CAGTTACTTC AACTGTAGGT	360
TCATACGACG TTTTCGTTAA CGTTATAGGT GGTGGATACG CTGGTCAATC AGGAGCTATC	420
CGTCACGGTA TCGCTCGTGC CTTCTTCAA GTAGACCCAG ACTTCGCGA TTCATTGAAA	480
GCGCAGGAC TTCTTACACG TGAATCACGT AAAGTTGAAC GTAAGAAACC AGGTCTTAAG	540
AAAGCTCGTA AAGCATCACA ATTTAGTAAA CGTTAATTCG AAAGAATTAC TACTATTATA	600
CAGAGCACCT TTCGGGGTGT TCTTTTTTTA TACTTTCTTA CTAAATTGGT GCAATTGACA	660
CAGTTGTGTC GACTTTAGTC GCTTACAAAT GTGGCTGCAA CCTGACATGG TCAGTTGCCT	720
CAAAACGTTA ATCAATACGA TTATATCAAC GTTCAAAGC ACTCAAGGGT TTACCCTATG	780
GGTGCTTTTT TCTATACTTT CTAAAAAAGT TTACCCTAAA ATTTGCCCTA AAATTACCCT	840
ACTTATTTTT AAGATGTTGG TAGGCAACTT GTCCAGCAGA TAATGGAAC ATGTTTGAAG	900
TATTAACATA AGTCTTAGTT GTAACGGTAT CGCTATGACT TAATGCTTCA GAAATGGCTT	960

CTAAGTCAT TCCTGCTTTT TTAGCAAGTG TCGCTCCTG

1162

999

(2) INFORMATION FOR SEQ ID NO: 194:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 2315 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 194:

AATATTATCA CTGTTCTTGA AGGCAGAACA CAAGCTGTCA TCCGAAATCA CTTTCTTCGC	60
TACGATAGAG CCGTTCGTTG TCAAGTGAAA ATCATTACGA TGGATATGTT TAGTCCTTAC	120
TATGACTTGG CTAACAGCT TTTTCCGTGT GCTAAAATCG TTCTAGATCG TTTCCATATT	180
ATCCAACATC TCAGCCGTGC CATGAGTCGT TTTCGTGTTC AAATTATGAA TCAGTTTGAA	240
CGAAAATCTC ATGAATACAA GGCTATCAAG CGTTACTGGA AACTCATCCA ACAGGATAGT	300
CGTAAACTCA GCGATAAAGC TTTTATCGC CTTACTTTTC GCATGCACTT AACAAATAAA	360
GAAATTCTTG ACAAGATTTT AAGCTATTCA GAAGACTTGA AACACCACTA TCAGATCTAT	420
CAACTCTTAC TTTTCACTT TCAGAACAAA GACCCTGAGA AATTTTTCGG ACTCATTGAG	480
GACAATCTGA AGCAGGTTCA TCCTCTTTTT CAGACTGTCT TTAAAACCTT TCTAAAGAAC	540
AAAGAGAAAA TCGTCAACGC CTTTCACTA CCCTATTCAA ACGCCAAATT GGAAGCGACC	600
AATAATCTCA TCAAATAT CAAACGAAT GCCTTTGGTT TTCGAACTT TGAAAACCTC	660
AAAAAACGGA TTTTATCGC TCTGAACATC AAAAAGAAA GGACGAAAT TGTCTTTTCT	720
CAAGCTTAGC TTTTCTTCAA CCCACTACAG TTGACAAAGA GCCTATTTTC GCTGATTCTC	780
CACTACATTT GACTGGATTC TAATTTTTTA GAGAAATACA AAAGAGCTAG CTTTAGCTAG	840
CTCTTTTCCT ATGCGGAGAG AGGGACTTGA ACCCTCACGA CCTAAAGCGG TCACAGGATC	900
CTTAGTCCTG CGCGTCTGCC AATTCCGCCA TCCCCGCGTC GATTACTTTA CTAGTATATC	960
AACTTTTGGG ATGCTTGTC AACTTTTTT TCAAATTTT TCATTTTCAC CAACCAGGTT	1020
ACTCAAAAAG TTCATTTAGA TTTTCATCTA CTAAGTTAGC TCCGAGTGTA TTTTGAAT	1080
GACCTAGGGC AAATTGATGA TTTTCAGGCC AGATGGAAGC AACAGCTGGT TTAACAATCT	1140
CGATGTCATA TCCTAGATTA TAGGCATCTA TAGCTGTATG TAGGACACAG ATATCCGTCA	1200
AGACACCTGT TAAGATAACG GTAGACACTC TACGCTCTCT CAAACGAATA TCTAGGTCAG	1260
TCCCTGAAAA AGCTGAGTAA TGGCGTTTAT CCATCCAAAA GACACGACTG TCTGAACCAT	1320
GCTCTTGATA AAAGATCCCC AAATCTCCAT ATAAATCCG TCCACTCGTC CCAATCAGAT	1380

1163

TATGAGGAGG AAATAACTTA CTTTCCGGAT GGAAACAATC GTTTTCTTCA TGAGCATCAA	1440
TAGTAAAGAA GATATAATCT CCTCGTTCAA AAGCTAATCG AGTTACCTTG CTGATGGCAT	1500
CCGAAATCGC CTGAGCTGGA GCACCTGCTG TTAGTTTCCC ACTATCAGCA ACAAATCTT	1560
CTGTATAATC AATCGAAATT AAAGCCTTTG TCATTAGTAA TCTCTTTCT TCACTTCTTC	1620
AAAAATATCT GAAATCAAGA CCTTAAGATA GGTTCCTTC ATTCCAAGTG AGCGACTTTC	1680
AATAATCCCC GCAGACTCAA GTTTACGAAG AGCATTGACA ATCACAGAGC GAGTGATTCC	1740
GATACGATCT GCAATCACTG ACGCAGTCAA CTTCCCTTCA TTTCCATTTA ATTCCCCTAA	1800
AATTGCTGAA ACAGCACGGA GTTCGGAGTA AGAAAGGTA TTGACCGCCA TGGTGACAGC	1860
AGTACGACGA CGAATATTTT TCTCATCTTC TTCACGTTGG AAGTTAAGAA GCTGAATCCC	1920
AACAACGGTA CTGGCAATCT CAACAAGAAC CAAGTCCTCA TCTTCGAATT TTTTATCATT	1980
ACGCCAAATA ATCAAAGAAC CAAGGCGAAT CCCCATACA TGAATCGGTG CAATAGTCGT	2040
CAAGCCATCT GGAAATCAT CTCTACTCTC AATAGGGAAA ATACTCATAT CATGCTCAAC	2100
AGGCAAGTTT GCTTCTGTTT CGTAAATCAT ATTAGCCCTT TGAACGTAGT CATCTGGGA	2160
AATCTTAGTT TGGAAGAATT GCTACGCGA TCTGTATTTG TTTTATAACG CATAAATAG	2220
CCAAGCAGAC GTCCCTTACT ATTGATAATG CAGGCATTGC AATGAATAAT ATCCGCTAAC	2280
TGACGCGTAA TAGCGTTGTA AGGGAGCTCA TCTCG	2315

(2) INFORMATION FOR SEQ ID NO: 195:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 6693 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 195:

CGATTTCTTC CATTTCTTCA AATAAGAATA CTTATCTGA CATATGTGTT ACCTTCTTCA	60
TCAAAAATTA TTTTGTAATC GATTACATTG CAGATCGTAA CATAAAGAAA AACAGATGTC	120
AAATATTAAA CGTAAAAACA TGGTCACTAA AGAACTATAA GAGAAAAGGT AAACCTAGCG	180
ACCGATGAA CGCTGGGTCG TTTGGTTTCG ATTGCTCTCT TCCTCTTGT TTTTCTGTTT	240
TTCTTCTTGT TTTTCTCAG CTTCTTGGC CTCTGTTTG GCTTTTCTCT CAGCTTCCAT	300
AATTAATTTA TCCGCCACAG TGAGCTGTA GATTCCAGCT TCCATGTCGA CCACACTCGG	360
TTCTGACAAT TGAGGCTTAA TCTTACTGTA ATATGGCAGT TTCTTACTCA TTTCAGATAG	420

1164

AGGAACCAAG ACTTCGTCCG AATCATTTCAT GGTCAATCGA ATTAAATCGG ATGTCACCTT	480
GCTTGGGGCT AATTCCACCT TTTGGATAGC CGCCTTGAGT TCTGGGCTAA TTTGAGCAAG	540
TTCTGAGACA AAAACTTTGA TTTGTTCACT ATCATTAAAG AGAACTGATA AATAAGTTTC	600
TGGTAAACTG TTCAGACTCA CAGAACTAGT CTCAAGCTGA CCACTGGAAA GAATAGGATA	660
ATGATTTTCA CCAGAAATAT AGTAGGCCAC AATATCATAT TCCTTGACCT TAATAGTGAA	720
CTTAGTTGGA AATTGATAGA CAAGTTGAGC TGATTCAACC CAATAGTTAG ACTTAATCTG	780
CTTTTCATAT TTTGCCTTGT CTAGCAGAAG GTTAATCGTA TAATCCGAAT CCTGAATGCC	840
TGAAGCCTGT CGAATATCAT CAGCTGTAGT TTGCACCGTT CCCTCAACAC GAATATCTTT	900
CATGGTCGCA TAAGGACTGA GCAAGTAGGC AGAGACAAAC AATAGAAGCA GACTTGAAAA	960
TAAAATCGTG AAGGCTCGCA AGATATGGAT ACCAGGAATC TTTGCTTTGG CTGGTTTTTC	1020
CTTTGTAGCC TTTTAGCAA GCTTTTTATC CTGTTCTCC TTCTCTTTAG ACTCTGGTTC	1080
TTCTTTCTCT TCTTTCTCTT TGTGAGCTC TGAGGATGCT ACTTTTTCTT CAGACTCTTC	1140
CTTAGCTGAT TCTGAATCTT CCTGGTCTGT TTCACTCTCC TGGTCCTGTT TATCCTCTGA	1200
CTTCTCAGAT TCTTCTCCCA TTCGAGCTTG TCTTTCTTTT TCCTTCTCCT CAGCTAGAGC	1260
CGCCTCTTCT TCAGCCTTCT TTTTAGATA TTCTTGGTTT CGTTTCTGCC ATTCTGATAA	1320
CTCTTTCAAT TCTTCGAGGG TTTCTTTGTC CTCATTTTTC TTATCTTTTG ACATTTACTT	1380
TCCTTATGAT AAATCTTTTT TCAACAATG ATAAAAATCT GCTAGAGATT TCAATTCCTT	1440
AGAAGCTTTC ATCTTAGCTT GGTAATCTTC CTGTGACTT AGTAAGTGAG AAAGCTTCTC	1500
TTCCAAACTA TCCAAGGTCA AATCGCTTTC TTGAAGGTCT TCTGCATAGC CTTTCTTAAC	1560
AAAGTAAGCT GCATTTTCAA TCTGGTCACC ACGACTAGCT TCACGACCAA GCGGCACAAT	1620
GACATGCAAT TTTGCTATCG CCAAGAGCTC AAAAATCGTA TTGGCACCAC CTCGTGTCAC	1680
AACAATATCA GCCAATTCCA TCAAGGGTTG ATAGAGATCG GTCACATAGT CAACACGAAA	1740
AAGATTTTGC CTCAACTCAT TCAGACTAGA ATCTCCAGTT AGATTGATAA TATTGTAGCG	1800
CTCTGTTAGT TCTTTCTTAT GGTCTGTCAC CAATTGGTTA AAGACACGAG CGCCTGCAGA	1860
ACCGCCAACA AACAATACAG TTGGCAATTT GGGATTAAAG TGGGTTTGAA TATCCACCAA	1920
TTCATCTGGT TCTGGAGTGT TTTGTCCGA AACCTTGGTC ACCGCTCCCA CATGCTCAAC	1980
CTTAGCCAAA CTCGAAGCTT GTTCAAAGGT TGAATACATC TTAGTCGCAA ATTTATAGGC	2040
GATTTTATTG GCCAAGCCCA TAGACAGGTC AGATTCGTGA ATAAAGACAG GCACTCCTGA	2100
CACACGCGCA GCGATAACAG GCGGTACTGA GACAAAGCCC CCCTTTGAAA AAAGGGTCTG	2160
TGGACGCGT CGCAACATGA TAAAGAGCGA TTGGACAATT CCCCACCAA CTTTGAAGAC	2220

1165

GTCCAGCATA TTTTGCCAAG AGAAATAGCG ACGCAATTTT CCAGTCGCAA TAGAATGGAA	2280
GGTGACATCC AAACCTGACT TAAGGATTTC TTGGTGTTCG ATACCACACT TGTCCCGCAT	2340
ATAGTGGACT TCCCAACCAT CTTGATGAA CTGGGCATT AACAAAAGAT TGAGGGTAAC	2400
GTGTCCAACC GTCCCCCAC CTGTAAAGAC AATTTTTTTC ATATTATTCT TTAACTCCG	2460
CTACTGTGTC GATAAAGAGG TCGCCACGTA CTTCAAAGTT AGCATACATA TCCCAGCTAG	2520
CATTGGCAGG ACTAAGAAGA ACCACATCTC CTTGAGTCGC AAGCTCATAG GCCTTGCGGG	2580
TCGCATCTGC AATATCTGTC GCCTCCACAT AAGCGACACC AGCCTTGTCT GCTGCCGTT	2640
TGACACGTTT TGCAGATTGA CCCAGGATGA CCATCTTCTT GAGTCCAGTA ATGTCTGGCA	2700
CCAATTCGTC AAACCTCATG CCACGGTCCA AACCACCTGC AATCAAGACG ACCTTGCTGT	2760
TGTCAAATCC TGACAAGGCT TTTTGAGTAG CCAAGATATT AGTTGATTTA CTGTCGTTAT	2820
AGAATTTAAC ACCCTTGATG TCATCCACAA ACTGGAGACG GTGTTTGACA CCACCGAAGG	2880
CTGAAAGAGT TTCCTTGATG GTTGATTGT CCACATCAGC AAGCTTGGCT ACAGCAATAG	2940
TCGCAAGGGC ATTTTCACA TTGTGGCTAC CTGGAACACC GATTTTCATC GCTGCCATGA	3000
CTACTTCACC ACGGAAGTAG AGTTGACCAT CTTCCAGATA AGCTCCATCA ACCTTTTCAA	3060
GTGTTGAAAA TGGTACAACA GTGGCTTCTG TCTTGGAACT CAAGTCTTTT GCCAAGTCTT	3120
GATTAAAGTT CAAGACAAGG AAATCAGCTG CTGTCATCTT GTTCTGGATA TTCCACTTGG	3180
CTGTACATA TTCCGAAAAT GACCCATGGT AGTCGATATG AGTTGGCATG AGGTGGTAA	3240
TAACCGCAAT CTCTGGATGG AATCTTTGAA CACCCATGAG TTGGAAAGAA GAAAGTTCCA	3300
TAACAAGCGT GTCCTTATCT GATGCTATTT GAGCAACCTG ACTAGCTGGA TAGCCGATAT	3360
TCCCTGATAA AAGACCATGT TGGCCAGCAG CAGTCAAAAC TTCCCAATC ATAGTCGTTG	3420
TGTTGTCTTT ACCGTTGAT CCTGTGATAC CAATAATCGG TGCTTCTGAA ATCAAATAAG	3480
CCAATTCAC CTCAGTCAAG ACTGGAATTC CCTTGGCCAA AGCCTTTTCA ATCATGGGAT	3540
TGTTGTAGGG GATACCTGGA TTTTACCA TAAGGGCAA CTCTTCATCC AAGAGTTCCA	3600
AAGGATGGCC ACCTGTAATG ACCTTGATCC CTTCTTCCAG CAACTTTTG GCAGCTGGAT	3660
TGTCCTCGAA AGGTTTCCCA TCATTTACTG TCACAAATGGC ACCTAGCTTG TCCAACAAAC	3720
GAGCTGCAGA TTCACCAGAC TTGGCCAAAC CTAACAAG GACTTTCTTA TTTTAAATT	3780
GATCTATTAC TTTCATGTCT CGAACTCCAT TTCTACTCCT ACTATTTTAC CATTTTATG	3840
GAAATAAAAA AGCCACAAAG TGTGTTGTG ACTCTTTCTT CTAAGTGAAT CTTACCATAT	3900
CATCTATGTG ATAAATCGGT AACTCGAATG ACCTGATCCA CTTGCTCCCA AATCAGAGGA	3960

1166

TTATGGGTCG CAATAATAAT GGTCCGATTC GGATTTTSTA AAGATTCTAG GATGGAAAGT	4020
AATTCCTCAG AGTTTTTGGG GTCTAAGGAA GCGGTTGGTT CATCTGCCAG GATCAAAGGT	4080
GGATCCTTTA AAATTATCTT CGCTAGTGCA ACACGTTGTG CTTCTCCTCC TGATAACTCA	4140
AATATAGGTT GCTTCAAATC CAAATAAGAG AGGTTTACAC GGTTTAGAGC TTGTTTCATC	4200
AAAGAGATTT TCTCTTTTTC CTTCAACTTT TTACCAACTA AACCCAGATT GAGATTCTCT	4260
TTGACGGTTT GGCTTTCAAT TAAGCCAAAA TCTTGAAATA AGTATCCTAA GTAATCTCTA	4320
AAGAAAACAG AAGGCTTGAT GTCCTTAAGA GAAGTGCCAT CATAGATGAT TTGCCCTTTG	4380
TCATATGGCT CCAATCGTCC AATCATATTC AAGAGTGTG TCTTACCACA GCCACTTGTA	4440
CCGATTAAGG CATAAATTTT CCCACCTTCA AAATGAAGAT TCATATCTGA AAATAGCTGA	4500
CGGCTTCCAA ATTTTTTAGA TATATTCTTT AGTTCAATCA TCCTATTTTC CTTTCATAAT	4560
TGTCATAGAA ACACGAGATT CTTTCTGCGC TTGACGGTAA AGCGTCAAAA CTGCACTAGC	4620
TAGAAAGACC AATAAAGTGA GCAAGCCAAT CACCAAGTCT CGACTGCTTA AAATAAAGAG	4680
ACTAGCACCA AATACAAAAC TAGCAAATG GCTAACCATA TACTGAGCAT GTGTTTCAAA	4740
AAATCGTAAA CCTGAAATTC GTTTAATCAA GATATCTCGG CGGAATTGCT CGAAATATAG	4800
AAGATTGACA GAATAAAGA GTAACAAGGA ACTGGCTATT CCAACAATAG CTCCTAAGAT	4860
TAAAGTTGCT GTTTCAGTTT GAACCTCATT ATAACGAGTT AGATAAACAC TTCTTCCTTC	4920
TTTAAGATAG GATACTTGCT CATAAATTC AGCTTTCTTC AAGAGTTCTA GCTTCTCTC	4980
ATATCCTTTG ATAAAGAGTT GTTTTCCAGC ATTGATAGAC CAACTAGATA AGGATATAAA	5040
ACTATCACCT GTAGAAGTCG GCGTGAATAC CACTAAAATC GGATCAGTCA AATACTGAGT	5100
AGATACGGGA TTCTCACCGT TATTATAAAC AAACCGCTTT TCTCCATTG AAAGATAACT	5160
AACGTGCGCT TTCTCTCAT AATCCAAAGG AGCACTTGCC TCCTCACCAG ATTTTCCATA	5220
ATAACTCAAT CTTTCTTCAA AAACCTTCTT AAGTTCTGCT TCTCGAGAGC GCAAATGTTT	5280
TGGGAGCAAG AGGATAAACT CACCTTTTGT GAGATGGGCT AACTTCTGTT TGGTCTCAGC	5340
ATCTACCAGC ACCTTTTCCT TGTCCAAATA ACTGGGACTA ACATAGAGCG TATTAGCATC	5400
TGAACTATAG GTATCCAGTG TCTCTCCCTG TTCATTTTTT CTTGTGGAT TGGCAAATG	5460
GAGCAGATTA TCCTTTACAT AAAGAGCTTG TTCTTCTTCG ATTGCTTCCT TGGCAAAGGC	5520
ATACCACTTG CTCTGATTTT CTGTATCTTT TCCTCTATCA CCTAAGCCAA AGGAAATCTG	5580
GTAATAGTCT GCTCTGTCTT GCCATGCTTG TTTTGAAATT TCAAGTTCTT TCAATCGTTG	5640
GTAAGACGTC AAACCTGTCT TAACAGCGTA GCCTACTGTA AAAACAGCTA CTAAGTGACA	5700
CAATAGGGTT AAAGCCATCA AGCGTTTAAG GGGTAATCTT CCCTTAATAA CGGGAACATA	5760

1167

TGCTTTGTAA CTCAAACCTCA TTAGGTAAAG GAGCATTAGT AAAATTGAAA TCGCCAATAA	5820
AAACAACAGA TAGAAACTAA TCCCAAAACC ATAGGTGGCT AACAAGATAG GATAAAACAA	5880
ACCTTGACTA AAAAGAACGA CTCCCCCACC TAGGAAGGAA AGGAGGGCTG ATAGAAGGAG	5940
CCATTTGATA TCAGTAGATA AAGAATGCCC CATGATGGAT AAGAGAGTCT GACCAGAAAA	6000
GAGTTTTATA CCTGCTGCTC TCATTTCTTT AATCCGAGTG ATAATCACTA AAGCAAAGAA	6060
AGATAAGCCA AATATTGCTA AACTAATTAA AATAAGGGGA TTTAGTAATA TTCGAAAAGC	6120
AAGAAAATAG GCGGTATCT TTCGGTCAGC ACTTGCTTTA TAACCCAAAT CTCCTAATTT	6180
ATCGGCAAGC TTTTCTTTTCG TCAAGGAGCC TGACAAAAGG AGATAACTAT TTAGCGGANT	6240
ATACGTTTAC GACTTTCTTG GCTAGCTTCT TGGAATTCTT TTGGTAAAGT TCCCTGACCA	6300
TAAGTTGCAT AAGTAAAGTG AGTCGTCCCA TCCTTACTCG GCTCTACAAT TCTTCTAGCT	6360
ATTAACTCT GTTCTGAGTT TGCAAAATTC TCCAATTCCT GTTCAAATAC CTCACGCGTC	6420
GGTTCCTGAG TATCTTTTTT GACACGAAGT AAAGAAACGG AATCATAGCT TGATATAAA	6480
TATTGTGGCG CACGTAAGAC AATAATCCAA GCAAGGAAGA AGCTGAGAAA AAAAGTTGAT	6540
AATAATATGA ATAGTTTCTT CATAGTAGAC TCCTTGTAAG CAAAATTCCC CCTGTAATTT	6600
CTTACAAGGG GAACGATTTA AATCAATGAA CGATTAGTCA TAATCACAGT AAAATGCTAC	6660
TTGTTCTCCC CATTTAGTCC AAATCCATGC AGG	6693

(2) INFORMATION FOR SEQ ID NO: 196:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1847 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 196:

CCGGTCTATG TACCCACTAC TTTGGGACAA TATGGGGATC AGCTACCCAA AACTAATCGA	60
GCGTTTGGTT GACCTTGCCA AGGAAAGTTT TGACAAGCGC GACGATTTGA TATAAATGA	120
AAGAGAGGGT AGAAGCCAGA ACCATCACTG CACGGTGACT AGAGTTCTCG GACTTCAGCC	180
CTTTTAAAG GAGTAGAAAT GAAATTAACA ATCCATGAAA TTGCCCAAGT TGTGAGGCC	240
AAAAATGATA TCAGTATCTT TGAGGACACC CAGTTAGAAA AAGCTGAGTT TGATAGTCGT	300
TTGATTGGAA CTGGAGATTT ATTTGTGCCA CTAAAGGTG CGCGTGATGG CCATGACTTT	360
ATTGAAACAG CCTTTGAAAA TGGTGCAGCA GTAACCTTGT CTGAGAAAGA GGTCTCAAAT	420

1168

CATCCTTACA TTCTAGTAGA TGATGTTTTG ACAGCCTTTC AATCCTTAGC ATCCTACTAT	480
CTTGAAAAAA CGACTGTTGA TGTCTTTGCT GTTACAGGTT CAAATGGCAA GACAACGACT	540
AAGGATATGT TGGCGCATTT ACTGTCAACA AGATACAAGA CCTACAAAAC ACAAGGCAAT	600
TACAATAATG AGATTGGCCT TCCTTACACA GTTCTTCATA TGCCTGAAGG AACAGAAAAAG	660
TTGGTTTTGG AGATGGGACA GGATCACTTG GCGGATATTC ATCTCTTGTC TGAATTGGCT	720
CGTCCAAAAA CAGCCATCGT GACCTTGGTT GGAGAAGCCC ATTTGGCCTT TTTCAAAGAC	780
CGTTCAGAGA TTGCTAAGGG AAAAAAGCAA ATTGCAGACG GAATGGCTTC AGGTTCCCTTG	840
CTTTTAGCGC CGGCTGACCC TATCGTAGAG GACTATTTGC CAACTGATAA AAAGGTGGTT	900
CGTTTTGGGC AAGGGGCAGA GCTGGAAATT ACTGACTTGG TTGAGCGCAA AGATAGTCTG	960
ACCTTCAAGG CCAATTTCTT AGAGCAAGCC CTTGATTTGC CAGTAAGTGG CAAGTACAAT	1020
GCGACAAATG CTATGATTGC ATCCTATGTT GCCTTGCAAG AAGGAGTTTC AGAGGAGCAA	1080
ATTCGTTTGG CCTTCCAAGA TCTTGAATTG ACGCGTAACC GTACCGAGTG GAAGAAAGCA	1140
GCCAATGGAG CAGATATCCT GTCAGATGTT TACAATGCCA ATCCAAGTGC TATGAAACTG	1200
ATTTTAGAGA CTTTCTCTGC CATTCAGCC AATGAAGGTG GCAAGAAAAT TGCAGTGTG	1260
GCGGATATGA AGGAGCTTGG TGACCACTCT GTTCAACTTC ATAATCAGAT GATTTTGAGC	1320
CTTTCTCCAG ATGTGCTTGA TACCGTGATT TTCTATGGAG AAAATATTGC TGAATTAGCC	1380
CAATTGGCCA GTCAAATGTT CCCAATCGGC CACGTTTACT ACTTCAAGAA AACAGAAGAC	1440
CAGGATCAAT TTGAAGACCT AGTCAAGCAG GTCAAGGAAA GCCTTGGAGC CCATGACCAA	1500
ATCCTGCTCA AAGGCTCTAA CTCTATGAAT CTAGCCAAGT TGGTAGAAAG TTTAGAAAAT	1560
GAAGACAAGT GATTTTGTCA AGTATTTGCA AAGAATGATT GCCATTACAG ATACTGGCTT	1620
AACCTTTACA AAAGATCCGT TTGACCGTGA GCGCTACGAA GACTTGCGAA GTCTGTTATC	1680
TGAAATGTTG AATCAAGCAT CAGACCTTGA TTCCGAAGAA GTGGCAGAAG TCTTGAAGCC	1740
AACCTTCTGCT TATGCGACTC CGTTAATGGA CGTCCGTGCT TGGATTGTTG AGGATGAGAA	1800
GATTTGTCTG GTTAGGGGAC AAGGAGAGGA TAGTTGGGCT TTGCCGG	1847

(2) INFORMATION FOR SEQ ID NO: 197:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 1062 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 197:



1169

CAAGCGAAAA CATT TTTTAT TCCAAATAAA CAGAGCATT TAGGAGAACA AGAGATTTTG	60
AATGCCAAGT CGATCTTGGC CTTGCTAGAC GGT TTTGAGT CACATAGCTA TGATGTAGTC	120
TATCTCCGTC AGCCTCTTAA TCGTCTCGAA TATATCGAGT GTGCGATAGT GGGGCAATCA	180
CAATTTCTCT TTAAGGTCAG TTATGCTGAT GGTCAAAAGC CTTACCGTGT CGATCTTCCT	240
GACCTACTAA CAAAGACAGA CTGGCAGATT ATCAAGTCAT TTTTAGATGC TTTGCTTGCT	300
TATACAGGGA CTGATATTGA AGGGCTAGAT GGT TTTGATT TTGAAGCTTA TTTCCAAGCA	360
AGTATTCAAG CCTATCTAGC AGACCCTGTA GCTCGTTTTA CGATTTGCCA AGGAATTTT	420
AATCCTATTT TCTTTAGTCG TGAGAACTTG AAAAGCTTTT TAGAGGCAGA TGGCTTGGCT	480
CAGTTTGAAG CGCGTGTGCG TGCGGTTCAA GAGACAGATG CCTACTTTGC GAGAGTTTCC	540
TTCTATCAGG ATGGAGAAGG AAAAGTGCAT GGC GTTTACC ATCTAGCTCA AGGAGTCAAG	600
ACAGTTTAC CGAGAGAACC GTTTGTTCTT GCAGCCTATA TTGAGCAATT GGTGGATAAG	660
GAAGTCCAGT GGGAGATTGA CTTGGTTCAA ATCAGAGGAG ATGGCTCTAA ACCAGAAGAC	720
TATGAAGCCA TTGCTCGCTT GGA CTATGCA AAATCTTAG AGGTATTACC CCCATCTTTT	780
TACCACCAAC TAGACGCCAA TCAAATAGAA GTGCAACCCA TATTAGACAA AGATTTTAAA	840
ACATTAGCAC AAGAAAAGTA AAGCAGAAGC AGGTCAATCG ACTTGCTTTT TTGACATAGA	900
AAAAATCCTG CCAAGATGAC AGGATTGCTA CTCAATGAAA ATCAAAGAGC AAAGTAGGAA	960
GCTAGCCGCA GCTGTACTTG AGTACGGTAA GGCGAAGCTG ACGTGGTTTG AATTTGATTT	1020
TTGAAGAGTA TGAAGTTTAA AGAAAAGCCA AGATACGAAG AT	1062

## (2) INFORMATION FOR SEQ ID NO: 198:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 6846 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 198:

TATCTACAAC CTCAAAAACA TGTTTTGawG gCTCGTCAGT cTATCTACAA CCTCAAAAAC	60
ATGTTTTgAa kGctcGTCAG tTCTATCTAC AACCTCAAAA ACATGTTTTG AcaGCcTcGT	120
CAGTTCTATC TACAACCTCA AAAACATGTT TTGAGCTGAC TTCGTTAGTT TCATCTACAA	180
CCTCAAAAAC ATGTTTTGAG CTGACTTCGT TAGTTTCATC TACAACCTCA AAAACATGTT	240
TTGangnCnT CGTCAGTTCT ATCTGCAACC TCAAAGCAGT GCTTTgagcG CTTGTCAGT	300

1170

TCTATCTACA	ACCTCAAAAC	AGTGTGTTGC	GCAGCCTTTA	ATCAGCCGCC	TAGTCCGCTC	360
TATGGTATTC	ATTAAGTCAA	CATCTCTTGT	TTAAGAGCAC	CAAATCAGGA	AATCTTCTCG	420
ATTCCCTGAT	TTTTTCTATT	TACGTTTTTCG	TGTTGAGCTA	CGTTCTGTCA	AACCATGAGG	480
TAAGAGAACT	TCACGTTCTT	CCAACTCTTC	CTTATGCATA	ATCTTGGTCA	ACATACGCAT	540
ACTAATGGCA	CCAAGGTCAT	AAAGAGGTTG	GGCAATCGTT	GTCAAGTTTG	GACGGGTAAA	600
GCGTGAGATT	TGTGAATCAT	CACTAGTAAT	AATTTCAAAA	TCTTCTGGCA	CAGAAACACC	660
CTTATCAGCC	AAACCGTTCA	AGACTCCTGC	TGCCAACTCA	TCACCTGTCA	CAACTGCTGC	720
AGTTGCATTT	GATGAAATCA	AACGCTCTGC	TAAGGCGTAA	CCATCATCAT	AGCTATATTT	780
AGATTCAAAT	ACCAAACCCCT	CACTATAAGT	GATTCTGCT	TTTTTCAAGG	TTTCCTTGTA	840
GCCAACTAAA	CGAACCTTAC	CATTGATGTC	ATCCACTAGC	GGACCGCTAA	CGAAAGCAAT	900
ACGCTCATTT	TCTTTAGCAA	GGTAACTCAC	TGCATCAATT	GTTGCTTGCT	TATAGTCAAT	960
ATTGACACTT	GGCAACTGGT	GCTCAACATC	GACAGTTCCT	GCGAGAACAA	TCGGAGTACG	1020
TGAACGCGAA	AATTCTGAGC	GAATTTTATC	TGTCAAGTGA	TACCCCATAT	AGATAATGCC	1080
ATCTACCTGC	TTTGAAAAGA	GGGTATTGAC	AACAGAAACT	TCTTTCTCGT	TATCTTCATC	1140
GCTATTAGCT	AGGACAATAT	TGTACTTGTA	CATTTCTGCA	ATATCATCAA	TCCCCTTAGC	1200
CAAACTCGAA	AAATAACCAT	TGGTAATATT	TGGAATCACG	ACACCGACAG	TGGTTGTCTT	1260
TTTACTTGCA	AGACCACGCG	CAACTGCATT	TGGACGATAA	TCCAAACGAT	CAATTACCTC	1320
TAGCACTTTT	TTACGGGTAT	TCTCTTTTAC	ATTTTATTG	CCATTGACCA	CACGGCTGAC	1380
CGTCGCCATG	GAAACACCTG	CTTCACGAGC	GACATCATAA	ATGGTTACTG	TATCATCTGC	1440
ATTCATTCTT	TTTCCTGTCC	TTTCTATCTC	ACACATTCTT	TTACAAGTAG	AGGTACTGAT	1500
TGAAGCTCTA	TATCTACTTA	CAAAAGTGAA	GATGTGAAAA	TTTCGTTTTT	ATATTTCTAC	1560
TTATTCCATT	CTATCACTAA	TTGTAAACAC	TTTCAAGTGT	TTTTTGAAGA	TTGATTGAAA	1620
AAATTTTATA	GAAAACCTAG	GTTTAGCTCC	TTGCTACCAC	CTTAGACTAA	ACAAAAAGGA	1680
GGAAACTAAG	CCCTCCTAAA	GTTATAGTAA	AATGAAATAA	GAACAGGATA	AATCGATCAG	1740
GACAGTCAAA	TCGATTCTTA	ACAATGTTTT	AGAAGTAGAG	GTGTACTATT	CTAGTTTCAA	1800
TCTACTATAG	GTATTGTTC	ATTCACTACC	GTCAATTTTA	GCACATAGTC	TTCATGAAAA	1860
TATTATATCA	TCATAACCAA	CCAGATTCTT	TCGCGATATT	AGCTGCCTCT	GTTGATTAC	1920
CTGCATCTAG	TTTCGAAAGA	ATATTGGTGA	CATAGTTTCG	GACTGTTCCG	TTGGATAGAT	1980
AAAGTTTGTC	TGCAATTTCT	TGGTTAGAGA	AGCCCTGAGC	AATTCCTTTT	AAAAGTGGCA	2040
TTTCTTGCTC	CGTTAATGGA	TTGGGATGCA	TCATCACCAC	TTCCATCAAT	TCAGGCGAAT	2100

1171

ACTCCTTGCG TCCTTCGAGG ACGGTGTGCA AGGTTTGCAT GAGGTCTGCA ATGTTTCTTT	2160
CTTTTAATAC ATAAGCATCT ACTCCAGCCT TGACCGCAGC TTCAAAATAC CCAGGACGCT	2220
TGAAGGTCGT CACCACAACC ACCTTTGTTT CAAGCTTTTC TGCTCGTATC CACTCCAAGA	2280
CTTCAAGACC TGTCTTAACA GGCATTTCTA CGTCAAGGAT GGCATATCT ACAGACTCCT	2340
TTTCTAATAG TTGGATTGCT TCTTGCCCAT TCTTGGCTTG AAAGACAGAC TCTACATCCG	2400
GTTGAAGCAT GAGCAACTGG CACATGGCAT CTCGCAACAT ACTTTGATCT TCTGCGACTA	2460
ATACTTTCAT CTACTTCTC TCCTTATAAA GTAGTCGAAC CTGCACTTCA GTTGGATGTT	2520
TCTGACTGAT TACACTTACT TCTCCTGAAA ATGCAAAAAC ACGATTTCGG ACTGTATGGA	2580
GCTCATCCCC GCTTATAGAG GCAAAGCCAC AGCCATCATC TCTCACTGTT AGAATGAGTT	2640
CTTTCTCTGT CCGTTCTAAT TTCAAGTAGA CTTTAGACGC TTTAGCATGT TTGATGATAT	2700
TGGTCACTAA TTCAAGCAAA ATCATGGAAG CCGTTGACTC CAATTCCTGA GTTAAGCTAG	2760
ACTTGTCCTCA GTGATTCTCA ACTTGAACCT CAATTCAGC AATTTCTAAC ATCTTTTCA	2820
CAGTCTCTAG TTCGGATGTC AAAGTTCTAG ACTTAAGATT TTCCACAATG GTTCGCACTT	2880
CATTCATGGA TCCTTGCTGA TCTGGTGAAT TTCTTTTAAT TCCTTTTCCA CCTGTGGATA	2940
AGCCTCCATC TGAAATAACT GCAAGGCTAA ATCTGTCTTG ACACTCAGCA TAGCAAAGGT	3000
ATGTCCCAGA CTATCATGCA AATCCTGACC GATACGACTA CGTTCATTTT CAGCAAGCAA	3060
TAGATTTATC TGAGCATTTT GCTTGACCTG AGCTTCTTTC AAATCCTCGA CAATACGAAT	3120
CCGAACCAAT CCAAAAGTCA TTAAATCGAC AAAAGTAAGA ATTACAAGTA GATAGAATAG	3180
AAACTCAACT TCGATTCTCT GAAAAATCAA CAGTTGCCCC ACAACAAGGA CTTGAGCAAG	3240
AAGAAAAGTC CAGACATGTA AAGACTTTAA ACTACGTACG CTGAAATGAT AACTTAAGAG	3300
ATTGGATAGG AAAAAGAAAA ACCAGATATA ATTAACAGCA ACAAAGGCAG TATTCCCAAC	3360
TACATAAGTC AGCATGAGGC CCCAATATAG CCAAGATAGG CGCTGGCTCT TAGTTGTTAA	3420
AACACCCAAA TATGCCACTA CAAATAGAAT ATCAATCAAT AAATGCCAGG CAGAAAGCCA	3480
CCCAGTCACT ACAGACAGGA TGGGGAAAT CATAAAATTT AAAGTATCC AAAACATATA	3540
ATGTATTCTT TTCAGTCTTT CAAGCATTA GCAATCTCCT TATGACCTTG AAGGTAAATG	3600
GTCAAACCAA ACAAACACTAC TGAAAAACA AGTAAATAAA CTGTGGCTGA TAGATTGATG	3660
CCACCCTCAT TTAAGAAGGT CTTGAGCAAC TCCATCAACT GATAGGTCGG GAGACACTTA	3720
CCTACTACTT GCATCCAGTC TGGAAATAAA GAGATAGGCA TCCAGAGTCC ACCTAAAACA	3780
GCCAACCCTA GATAAAGAAG ATTGCCCACG ACAGACATCA ACTGACTAGT TGGTAAGAGA	3840

1172

GTCAAGGTCA AACCAAGCGC TACGAAGGCA ATACTTCCTA CTATCAGCAA AAGTGCAGCC	3900
CCAATCCAAT TTCCAAGAGA CATGTCCACA CCTCTTACAA AATGCCCAAC TGAGAAAACC	3960
ACCAAGATTG AAACCAAATA ATCAACCAGC ATACTTGTTA TCTTTGATAG ATAATATTCT	4020
ACCATATTTA CAGGGCTATG ACGCAATGTT TTCTGCCAGT TGTGATCTT GTCGGTATGT	4080
AAAACAACCTG GGAATGAGAA GATAGCTGTT GACATCATGG AAAATGCAGT CATGGAGATA	4140
AGATAATCAC GCATAAAATT CGCGAGTTCA CCTGGTGTGT CCTGATAGAT ACCAGAAAAA	4200
AATAAATAGA AAGCCGTCGG CATCCCTACT GACAATAGAT AATAGATCAA TTGTCGTTTG	4260
GTCAATAAAA ATTCTATCTT ACTAAGTGCT AGCCATCGTT TCATCTTAGT TATCTCCCTT	4320
CTGCGTTTCT TCAAAGATTG TATCCAACAA ACTACGATTA TTAACITCAA TTTCTTGAT	4380
GCCACATCCT GCTTGAACCTA ACAGTTCCCA AAAAGCATCT GCTTCGCGTG TGACTACTTG	4440
TAGAGCATCC TGTTTTTGTG ACCAGTTTTC AACCAAGTTA GACTGCTCAA TGACTTCCTT	4500
GTATGCCAGA GGAAGGATAA AATGCTTTTC AATTCCCTCA CTACGCATAG CTAGAGGCGT	4560
CGTATCAGCA ATCAACTCTC CCTTATTAA AACCAAAATC CGGTCAGCCG TATGCTCTAC	4620
CTCTTCAATA TAATGAGACG AATAGAGAAT CGTGACTCCT TGCGCTTTTA GGTCCCGAAC	4680
GATTTCCCAA AAGCGTTGAC GAGTTGAAGT ATCCATGGCA GCAGTTGGTT CATCTAAAAA	4740
GACAAGCTTT GGTGCGCCAA TCAAGGTCAA GACAAAAGAG AAGAGACGCT TTTGCCCGCC	4800
TGACAATTTT TCTGCGAATT GCTCTTTTGT TGCTGGTCA AACTGCAATA GTTGATCGAT	4860
TTCTTGATCG CTCAAGGAAT TTGGATAGAT ACGTTGAAAG AAAGCAATCA ACTCTTTGAC	4920
CTTTAATTTT TGAACGATGA CATTTTCTTG AGGCAGATAA CCTCTAATAT AGTCTAACTG	4980
AGAACTCGTC ACTGACAAGC CTGGGATGGA TACTTGACCG CTTGTGACCA GTTTATCTCC	5040
AAGCAGACAG TCCAAGAGTG TGGTCTTCCC AGCACCATTG GGCCCAATCA AGGCGACGCA	5100
TTACCTTCA GCTACCTCAA AGGAAATACC CTTCAAAATA GCCTTGCCCT TGATGTTTTT	5160
ATTTAGGCTT TCTACCTTAA TCATATTCAT GATATTCTCC TTTCAACCAC TCCATTCTCA	5220
TAAGGAAAAC GACGAAAATC ATAAATCCAA ACCCCAAAGC ACCACGAATG AATTGGCGAA	5280
gCAAGGTTTG GTCAAACCAA CCTGTAAACA TTTCCACTAA CCATACCAAG AGTGACAGGC	5340
CGATAAAGAA ATAGATGATC CCTCTCTTCA TTCTCAAGC TCCTTTTTCA CATCTCCGAC	5400
TAATTTCAAA CCTTCTCTAA CAAGCCAAGA CATCATTTCA AAGCCAGCAA AGAGCTCCCA	5460
AGGAAAATGA TAGAACTCT CATCCAATCC CGAAAACATG AGTTAGGTCA TAACTCCTGC	5520
TACTACTAAA CTCAGTGGCA TAATCATTTT ATTTCTCATC TCTTCTTCT CCATTTCTATA	5580
CTACAATTAT AGTCTTTTGA AATCAGAGGA GACAGAAGCT TCTGTCACTA GAAAATATGA	5640

1173

CAAATGTCAT AAAAAATTCT GTTCAAAACA AGCAAGATAC ACTATACAAT AAAACACAAT	5700
TAGAAAAATC TAAGGCAACT TCCTCAAAAG AGATATCAAA CCCAATTCAC ACCATAATGT	5760
AAACTAATAC TTATTTAAAA TCAAAAAGAG TAGAAATTTT TATCAGACAA ACACATATAT	5820
AGTGTATTGA ATCTATAACA GTAGGCCTTA AATACTAAAA TATTTCTATA AATTAATTTA	5880
ACTTTCCTGA TAGAGCTGTT CATATCTTAT TTCAATTCTC TAAATTATAC GTTGAACAAA	5940
ACCCTTCTAT TTCTTCTTA AAGATTTATA AGAGTTATAA AATCTGTTAA ATTTCAATGT	6000
GTATACCTAA ACTACGGTAT TTATTGAAAA GACTGGAGAC AAAAAGTATA CGCTGCCAAA	6060
ATGAATTACT GAAAATCAAA AAAGAGAGAA CCAAAGTAT TCCCTCTTA TGTATATAAT	6120
ATCTAGTTTT AAAAATACAC ACTCACATAT CTCTGTAATG AATCGGGAAG ACAGGATTCTG	6180
AACCTGCGAC ACCTTGGTCC CAAACCAAGC ACTCTACCAA GCTGAGCTAC TTCCCGAGTT	6240
AAATAGAAAA ATGCACCCTA GAGGAGTCGA ACCTCTAACC GCCTGATTCTG TAGTCAGGTA	6300
CTCTATCCAG TTGAGCTAAG GGTGCTCCAT ATTATGCCGA GGACCGGAAT CGAACCGGTA	6360
CGATCGTTAC CAATCGCAGG ATTTTAAGTC CTGTGCGTCT GCCAGTTCCG CCACCCCGGC	6420
CTCTCTAAGC GAACGACGGG ATTCGAACCC GCGACCCCCA CCTTGGCAAG GTGGTGTCTT	6480
ACCACTGAAC TACGTTCCGA CTGTTTTCTT CTATCTAAAA ATGCCGGCTA CATGACTTGA	6540
ACACGCGACC CTCTGATTAC AAATCAGATG CTCTACCAAC TGAGCTAAGC CGGCTCATTT	6600
GTATATCTT AATGCGGGTT AAGGGACTTG AACCCCCACG CCGTTAAGCG CCAGATCCTA	6660
AATCTGGTGC GTCTGCCAAT TCCGCCAAAC CCGCATATAT GACCCGTAAT GGGCTCGAAC	6720
CAGTGACCCA TTGATTAAAA GTCAATTGCT CTACCAACTG AGCTAACGAG TCTAAAATAA	6780
CTTGCGTTAC CTTAAACGGT CCCGACGGGA ATCGAACCCG CGATCTCGCC GTGACAAGGC	6840
GACGTG	6846

(2) INFORMATION FOR SEQ ID NO: 199:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2911 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 199:

GAATTCATTT TAAATAAAGA TACGGGAGAG GTAAGTGAAT TAAAACCTCA TAGGGTAACT	60
GTGACCATTG AAAATGGAAA AGAAATGAGT TCAACGATAG TGTCGGAAGA AGATTTTATT	120

1174

TTACCTGTTT ATAAGGGTGA ATTAGAAAAA GGATACCAAT TTGATGGTTG GGAAATTTCT	180
GGTTTCGAAG GTAAAAAAGA CGCTGGCTAT GTTATTAATC TATCAAAAGA TACCTTTATA	240
AAACCTGTAT TCAAGAAAAT AGAGGAGAAA AAGGAGGAAG AAAATAAACC TACTTTTGAT	300
GTATCGAAAA AGAAAGATAA CCCACAAGTA AACCATAGTC AATTAAATGA AAGTCACAGA	360
AAAGAGGATT TACAAAGAGA AGAGCATTC AAAAAATCTG ATTCAACTAA GGATGTTACA	420
GCTACAGTTC TTGATAAAAA CAATATCAGT AGTAAATCAA CTACTAACAA TCCTAATAAG	480
TTGCCAAAAA CTGGAACAGC AAGCGGAGCC CAGACACTAT TAGCTGCCGG AATAATGTTT	540
ATAGTAGGAA TTTTCTTG ATTGAAGAAA AAAATCAAG ATTAAGATAA AAGCTATAGA	600
AAAAATGGT TTATGTACTG AGATTAGATA GTGAGGTGAT GACATAGTTT TGTGAAAATA	660
GCCATTTATA ACTCAATTAT TTAGTTTACT TTACTTTACT AGTGATACTA TTTGGAGTTA	720
TTAATGGACT TAGTTTATAT AACTAATGAA TTGATTGAAA GGGTTAGTAT TGACAATATT	780
GGTCATATTG ACTAGAAAAT AGAGTCTATC AAAATTTAAA GGCTAATAGA GGTGATGAGA	840
CAATTCGGC TCTTTGTCAA CTGTAGTGGG TTGAAGTCAG CTAAGCTCGA GAAAGGACAA	900
ATTTTGTCTT TTCTTTTGTG ATATTCAGAG CGATAAAAAT CCGTTTGTG AAGTTTCAA	960
AGTTTCGAAA ACCAAAGGCA TTGCGCTTGA TAAGTTTGAT GAGATTATTG GTCGCTCCA	1020
GTTTGGCATT AGAATAGTGT AGTTGAAGGG CATTGACAAT CTTCTCTTTA TCTTTGAGGA	1080
AGGTTTLAGA GGATGAACTT GATTCAGATT GTCCTCAATG AGTCCGAAAA ATTTGTCAGG	1140
CTCCTTATTC TGAAAGTGAA AAAGCAAGAG TTGATAGAGA TTATAGTGGT GTTCAAGTC	1200
TTCTGAATAG CTCAAAAGTT TATCTATAGT AGATTGAAAC TAGAATAGTA CACCTCTGCT	1260
TCTAAAACAT TGTTAGAAAT CGATTTGACT GTCCTGAATG ATTTGTCCTG TTATTATTTT	1320
ATTTTACTAT AAATCCACGT TTACGAATCT CTTCCACAC TTGTTCAATG GGGTTCATCT	1380
CTGGTGTGTA TGGAGGAATA AATGCAAAAC CAATATTAGT CGGAATCTTT AAGGTACTTG	1440
ATTTATGCCA TATAGCATTG TCCATAACGA GTAAAAGATA ATCATCTGGA TAAGCTTGTG	1500
AAAGCTCCTA TTCCTAAAGC CCCTTTATAA CCTCTTGCGA GAGAGACTAT TGAATCAGCC	1560
CTTACTTCAT GCGGATGAAA CTTCTTATCG GGTCTAGAG AGTCATAGCC ATCTGACCTA	1620
CTATTGGACC TTTTGTCTG GGAAAGTTGA GAATCAAGCA ATCAGCTGT ACCATCATGA	1680
TCAGAGTCGG AGTGGTTCGG TAGTACAAGA ATTCCTAGGA GATTATTCTG GCTATGTTCA	1740
TTGTGATATG TTGCGGCAGT AACTTAGGAC TTAGTCTC TAGTTCTGCC TATGCGATAG	1800
CAGTCCAAGG TTAGGAGCA AGGCGACGCT AAGCTTGTA AACTGCGAAC CGCTAGAAGC	1860
TTATCGTCAA CTGGAAGAAG CTGAACTGT TGGATGTTGG GCGCATGTGA GAAGGAAATT	1920

1175

TTTTGAAGCG ACCCCCAAGC AAGCAGATAA ATCATCCTTA GGAGCTAAAG GTTTAGCTTA	1980
TTGTGATCAG TTATTTTCCT TGGAAAKAGA CTGGGAGGCT TTGCCAGCTG ATGAACGACT	2040
ACAGAAACGT CAAGAACATC TCCAGCCCCT AATGGAAGAC TTCTTTGCTT GGTGCCGCCG	2100
TCAGTCAGTT TTAGCAGGTT CAAAAGTAGG AAGGGCAATT GAATACAGCC TCAAGTATGA	2160
AGAAACCTTT AAGACTATTT TGAAAGACGG ACATCTGGTC CTTTCCAATA ATCTAGCTGA	2220
ACGCGCCATT AAATCATTTG TTATGGGACG GAGTAAAGA GTCCAGTGA CTCTTTTAGC	2280
CTGAGCTCAG TTTAAAAAG CGAGGGTGGT TATTTTCTCA AAGTTTGA GGAGCTAAAG	2340
CAAGAGCTAT TGTTATGAGC TTGTTGAAA CAGCTAAACG TCATCAATTA TAGTGCGTTG	2400
AATCTATAAC AGTACGCATC GACTGCTAAA ACATTTCTAT AAATCAATTT TCCTTTCCTA	2460
ATCGATTTGT TCATATCTTA TTTCAATCCA TTATAAATAG CGAGAAATAT CTATCCTATC	2520
TTCTAGAATG TCTTCCAAAC GAGGAACTC TCGTAAACAA AGAGGTTTGA GAGGTTTATT	2580
TACCATGGAC TAAAGTTGTA CAAGAAAAGT GCAAATAAGA AATCTCCAGA TTAGGAACATA	2640
TCCGTGAGTT CACTAATCTG GAGATTTTTC AATAGATTCG TTATTGGGCG GTTACGATAT	2700
GATCACTACT TCGTCAGTCT TATCTACAAC CTCAAAACAG TGTTTTGAGC AACCTGCGAC	2760
TAGCTTCCTA GTTTACTCTT TGATTTTCAT TGAATATTAG AACAGAAAAA ATGCTTGGAG	2820
TATTTGTTTG TGTGTTTATT TTTATATAAC AAATATAAA CAAAATAAAA ATATAAAAAA	2880
AGAGACAAAA AAGAACAGAA AGTAATTGAC A	2911

(2) INFORMATION FOR SEQ ID NO: 200:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6854 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 200:

GAAAATAAGT CTGACAGAA AGCGCTATCA ATGATAGAAT GAATTCAGAT AAAAAGATTT	60
ATTTTAAAA CAAAAATGAA ACGTTTCAAA AAAAGAAATA AAGAGACAGC GCCAAGCGCT	120
ATCTTTTCTA GAAAAAATG AAACGTTTCA AAAAGGAGG TTGCTATGAA TAGCAAAGCG	180
AAGCAAGTTT CTCTTTGGGA AAGAATCAAG AAACAAAAAC TCTTGTTATT GATGACTGTC	240
CCCGGTTTAG TTTAACCTT TATCTTTAAA TACATCCCTA TGTATGGGGT TTTAATCGCA	300
TTTAAAGATT ACAATCCTT AAAAGGAATT TTAGGGAGTG ATTGGATTGG TTTTCTGAG	360

1176

TTTACAAAAT TCATATCCTC TCCCAACTTT GGTATCTTGT TAGCCAACAC ATTAAAATTA	420
AGTATCTATG GTTTATTGCT TGGCTTTTFA CCACCAATCA TTCTCGCGAT TATGCTCAAT	480
CAACTCTTGA GTGAAAAAGT CAAAAACGA ATTCAGCTCA TTTTATACGC ACCAAACTTT	540
ATCTCAGTCG TTGTTATTGT CGGTATGATT TTCCTCTTCT TTTCAGTGGG AGGACCAATC	600
AACAATTTTC TTTCTATGTT TGAATGAAG GCTGACTTCT TGACAAATCC AGACTTCTTT	660
AGACCTTTAT ACATCTTTAG TGGTATCTGG CAAGGAATGG GCTGGGCTTC AACGCTCTAC	720
ACGGCAACAT TGGTAAATGT AGATCCAGCC TTAGTAGAAG CAGCCCGACT GGATGGAGCC	780
AATATCTTCC AACGAATCTG GCACATTGAT ATTCCAGCTC TTAAGCCTAT TATGGTTATC	840
CAATTTGTTT TAGCTGCAGG TGAATTATG AATGTCGGAT ATGAAAAAGC ATTCTTGATG	900
CAGACATCGT TAAATTTGCC AACTTCTGAA ATTATCTCGA CATATGTCTA TAAAGTTGGT	960
CTTGATCAG GAGACTATTC TTAACAACA GCGGTTGGTT TGTTTAATGC AGTGATTAAC	1020
GTAGTATTGC TTGTTGCAGT TAACCAATC GTTAAACGCA TGAATAATGG TGAAGGAATT	1080
TAAGGAGGAA AGTATGAAAA ATTCGATTAT GGATACAAAA TTTGATAGAC GTATCTTACT	1140
CTTAAATAAA ATCATTATTG TCTTTATCGT TTTGATGACT TTGCTTCCTT TACTTTATAT	1200
CGTCGTAGCA TCCTTTATGG ATCCTAAGGT TCTGGTTAGT AGAGGGATTA GCTTTAATCC	1260
AGCCGATTGG ACTGTAGAAG GTTACCAGCG TGTATTCACT GACCAATCTA TTCTAAGAGG	1320
TTTTATCAAT TCTCTACTAT ACTCTTTTGG ATTTGCAGCT TTAACAGTCT TGCTATCTGT	1380
GTTTACAGCT TATCCTCTTT CTAAGAAAGA CTTGGTTGGA CGTCGTTGGA TTAAGTACTT	1440
CTTGATTGTA ACTATGTTCT TTGGTGGTGG TTTAGTCCCA ACTTACTTGC TCGTAAAAGA	1500
ATTGGGAATG CTCAATACTC CATGGGCTAT CATTTGTTCCA GGTGCTGTGA ACGTTTGGAA	1560
TATTATTCTT GCTAGGGCCT ATTTCCAAGG ATTCCTGAA GAATTAGTTG AAGCTGCTGT	1620
CATTGATGGT GCAAATGATT TACAGATTTT CTTCAAAATC ATGCTTCCTC TTGCAAAACC	1680
AATTATGTTT GTTCTCTTCC TTTATGCTTT TGTAGGACAG TGGAACTCAT ACTTTGATGC	1740
AATGATTTAT ATCAAGGATC CAAACTTGGG ACCATTGCAA CTTGTACTTC GTAAAAATCT	1800
CATTCAGAGC CAACCAGGTC AAGACATGAT TGGAGCACAA GCGGCTATGA ATGAAATGAA	1860
ACGTTTAGCT GAATTGATTA AATACGCAAC TATTGTCAAT TCCAGCTTGC CATTGATTGT	1920
TATGTATCCA TTCTTCCAAA AATACTTTGA TAAAGGAATT ATGGCTGGTT CACTTAAAGG	1980
ATAAAAAAAG AAAAAATAAA AGGAGTTTTT TCATGAAATT CAAAACATTC TCAAAATCAG	2040
CAGTTTTGTT GACAGCTAGT TTAGCAGTAC TTGCAGCCTG TGGCTCAAAA AATACAGCTT	2100
CAAGTCCAGA TTATAAGTTG GAAGGTGTAA CATTCCTCGT TCAAGAAAAG AAAACATTGA	2160



1177

AGTTTATGAC AGCCAGTTCA CCGTTATCTC CTAAAGACCC AAATGAAAAG TTAATTTTGC	2220
AACGTTTGA GAAGGAACT GCGGTCATA TTGACTGGAC CAACTACCAA TCCGACTTTG	2280
CAGAAAAACG TAACTTGGAT ATTTCTAGTG GTGATTTACC AGATGCTATC CACAACGACG	2340
GAGCTTCAGA TGTGGACTTG ATGAAGTGGG CTAAAAAAGG TGTATTATT CCAGTTGAAG	2400
ATTTGATTGA TAAATACATG CCAAATCTTA AGAAAATTTT GGATGAGAAA CCAGAGTACA	2460
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AGGCCTTGAT GACAGCACCT GATGGGCACA TTTACTCATT TCCATGGATT GAAGAGCTTG	2520
GAGATGGTAA AGAGTCTATT CACAGTGTC ACGATATGGC TTGGATTAAAC AAAGATTGGC	2580
TTAAGAACT TGGTCTTGAA ATGCCAAAA CTACTGATGA TTTGATTAAA GTCCTAGAAG	2640
CTTCAAAAA CGGGGATCCA AATGGAAATG GAGAGGCTGA TGAAATTCCA TTTTCATTTA	2700
TTAGTGGTAA CGGAAACGAA GATTTTAAAT TCCTATTTGC TGCATTGGT ATAGGGGATA	2760
ACGATGATCA TTTAGTAGTA GGAAATGATG GCAAAGTTGA CTTACAGCA GATAACGATA	2820
ACTATAAAGA AGGTGTCAA TTTATCCGTC AATTGCAAGA AAAAGGCCTG ATTGATAAAG	2880
AAGCTTTCGA ACATGATTGG AATAGTTACA TTGCTAAAGG TCATGATCAG AAATTGGTG	2940
TTACTTTAC ATGGGATAAG AATAATGTTA CTGGAAGTAA CGAAAGTTAT GATGTTTAC	3000
CAGTACTGTC TGGACCAAGT GGTCAAAAAC ACGTAGCTCG TACAAACGGT ATGGGATTTG	3060
CACGTGACAA GATGGTTATT ACCAGTGTA AAAAAACCT AGAATTGACA GCTAAATGGA	3120
TTGATGCACA ATACGCTCCA CTCCAATCTG TGCAAAATAA CTGGGGAAC TACGGAGATG	3180
ACAAACAACA AAACATCTTT GAATTGGATC AAGCGTCAA TAGTCTAAAA CACTTACCAC	3240
TAAACGAAC TGCACCAGCA GAACTTCGTC AAAAGACTGA AGTAGGAGGA CCACTAGCTA	3300
TCCTAGATTC ATACTATGGT AAAGTAACAA CCATGCCTGA TGATGCCAAA TGGCGTTTGG	3360
ATCTTATCAA AGAATATTAT GTTCCTTACA TGAGCAATGT CAATAACTAT CCAAGAGTCT	3420
TTATGACACA GGAAGATTG GACAAGATTG CCCATATCGA AGCAGATATG AATGACTATA	3480
TCTACCGTAA ACGTGCTGAA TGGATTGTAA ATGGCAATAT TGATACTGAG TGGGATGATT	3540
ACAAGAAAGA ACTTGAAAA TACGGACTTT CTGATTACCT CGCTATTAAA CAAAAATACT	3600
ACGACCAATA CCAAGCAAAC AAAAAGTAGA GGTGATTAT GGGAGATAAG AAATACACAG	3660
TAGAAAAAGC CAATCGTTT ATAGCAGAAA ATAAACATCT CGTTAATACT CAATATAAGC	3720
CTGAAGAACA TTTTTCAGCT GAGATTGGTT GGATCAATGA TCCAAATGGA TTTGTCTATT	3780
TTCTGTGAGA ATACCATCTC TTTTATCAAT TCTATCCATA TGATAGTGT TGGGGGCTA	3840
TGCACTGGGG ACATGCTAAA AGTAAGGACT TGGTGACTTG GGAGCACTTG CCAGTGGCAC	3900

1178

TTGCTCCTGA CCAAGATTAT GACCGAAATG GTTGTTCCTC AGGCTCTGCC ATTGTCAAGG	3960
ATGATCGCCT CTGGCTCATG TACACTGGAC ATATCGAAGA AGAAACCGGT GTCCGCCAAG	4020
TGCAAAATAT GGTATTTTCA GATGACGGGA TTCACTTTGA AAAGATTTC CAAAATCCAG	4080
TTGCAACTGG ATCAGACTTA CCAGATGAGT TGATTGCTGC TGATTTCCTG GATCCAAAAC	4140
TCTTTGAAAA AGATGGACGC TATTACTCCG TAGTAGCTGC CAAACACAAG GATAATGTGG	4200
GCTGTATCGT TCTACTAGGG TCCGATAACC TAGTAGAATG GCAGTTCGAA TCCATCTTTT	4260
TAAAAGGGGG AGAACACCAA GGTTTTATGT GGAATGCCC AGATTACTTC GAGTTAGATG	4320
GGAAAGATTG CCTTATTATG TCACCCATGC GTTATCAGCG TGAGGGAGAC TCATATCATA	4380
ACATCAACTC ATCGCTTTTG TTCACGGGTA AGGTAGATTG GAGAGAAAA CGTTTTATCC	4440
CAGAATCAGT TCAAGAAATT GATCATGGCC AAGACTTCTA TGCGCCTCAA ACATTGTTGG	4500
ACGATCAAAA TCGTCGTATC CTGATTGCTT GGATGCAGAC ATGGGGGCGT ACCCTTCCAA	4560
CCCATGACCA AGAACACAAG TGGGCATGTG CCATGACTCT ACCTAGAATT CTAAGATTGG	4620
AAGATGGCAA ACTAAGACAA TTCCCTGTTA AAAAAGGCCA ATATCAAATC CAAATAGATA	4680
AAGATTGTCA TTACCACTTA GGAAATGATA TAGATTATCT TGAATTGGT TATGACAGTA	4740
ATCGCGAGCA AGTTTACATT GATCGTAGCC ATCTTATTCA AAAAATCTA GGTGAAGAAG	4800
AACAGGACAC TAGTCGACGG TATGTAGATA TTGAAGCTAA AGAATTGGAA GTTGTCTAG	4860
ATAAAAATTC CATCGAGATT TTTGTCAATC AAGGTGAAGC AAGCTTGA CTCAACTTATT	4920
ACTTAACGGT GCCAGCTGAG CTATCACGAA TTGATTAAAA ATTAAGTTAT TTCTCCTAAA	4980
GAAAAAGTTC TCTTTCTAAA ATAGTGGAAA GAGGACTTTT TGTGTTTTGG GTATATAAGC	5040
TTAGTTTATG GTATTGTAA AATTGGTGTT GGATTATGAT TTAAGCTAGT TTTCTAAAGA	5100
ATTTGAAAAA AATTTTATTT AAGCAAAAAA ACCTTGCTTC CAAGGCTTTT CCTGTTGTAT	5160
TTAGATGCCC CCTACAGGGA TTGTAGGAGA TATGTTGCTT AGATGTTCTT GATTTTCTGG	5220
TGTTTGTAA CGTTTAAATG AGTTTPTTGA GTTTGTGGT GGGGCGTTGC CCGGCAATTG	5280
CCCGACTTAT TGCTTGAAAA AGAATTAAAA ATATAGTATA GTTAATTATA GATTAACACT	5340
TGCTTGAGG AACTGATGAA GAACAATGAA AGATTAGGTA TTAAATTAAG TAGAGATAGC	5400
GTTTTAGGAT TGAGGGAAGT TAGAAGGCTT TATTTAGGCA GTTCAGATAT CCCAGTTTCT	5460
GATGGCTATG TGATTGAAGT TGCTTATAAC CAGATATCAC ATGAGATTGA TATTATTGAT	5520
TGGGTAGAGT TGAACAAGTC AAAAATTAAG ATAAGTGAAG TTAGTGAAAG CGTGGATATA	5580
GATGCCACTA GCTTGAGAAC AACTTGA CT TTAGACACAT TAGTATATGA AGGTATGAGA	5640
GATATACAGT TAAAGTTGAG AGAGCTTACA AAGGGGAGAG TATTCCTTTT ATTTGTAGTG	5700

1179

AAGTTAGTTT TGTTTGCTTC TATTTTAAAG AAAAAAGATT TACTAGAAAA ATTTCAAGAA	5760
AAGTGTTAAT CAAGTATTGA CACTTTATCT GGATTTTCGT ATAATATGCT TAGAAAGGAA	5820
TCTTTCTAAA TTTTTTCGT CCTTATGTGT TAATCAAAGA CGAATACAAA AACATATTTT	5880
TTTACTCTAA AAAGTGTTAA TCAATGATGT ATTTGTTAGA GAGGTAGATA AATGGAATTG	5940
AGAGCACCAC CAGTTATAAT AGTATAAAAC GTATAATAAA AATATTTTAA CTTGAATTAT	6000
AGAAAAGGAG AAACAAATCA TGAAACAAAA ACAACCGATT GTTTCTAGAA CGAAACAACA	6060
TACATTTGAA GAGCTTATTC AAGACCAAAA GTTAGAAAGA TTGGCTAAGT TGTGCGCCGA	6120
TTTGGTTGGA AGGTATGGTT TTAAGTCTAG CTGTGCGTCT TCATTGCGA ACTTGATTAA	6180
AGAAGCGTAT GGGGGTAAAA ATCTAAACGT AGTTTATGCG AGTCGGATGT TGGCTCTCTG	6240
GAATATTGCT TGCAGTTGTT ATCATAAGGC TGATGGGTAT TCTTTAGCAG ATGCGCTTTT	6300
TAGTGATAAA AAAATTTGTC TAGATTCTTA CTATTACCAC AAGAATACCT CTAATACCAT	6360
AACTAGTGAT GTGATAAAAG ATGTTTACGA TAATTATAAT AATTATATGG TTTTAACTCG	6420
AGAAGCGACA CCTGAATACA TTTATGTTGT ACAAACCTGAA ATGCCAAAAG ATTCAGATTT	6480
ATATTTTAT ATTAGAGAAG TTCTGGGATT ATCGTTTAGT ACCATGCATT ATGCATTTT	6540
AGTCAAGGTT CTGTCAGGAG CGCTTGCTAG AAAATATAAG CCATATCGAA ATTGAATTAT	6600
TTAAATTTAT ACTCTTCGAA AATCAAATTC AAACCAAGTC AGCTTCGCCT TGCTGTAATC	6660
AAGTGCTGTC TGTGGCTAGC TTCTTAGTTT GCTTTTTGAT TTTCATTGAG TATTACTCTT	6720
ATGGTAGTTA TTTATGGCAT AATAATATTG ATTTGGGAGT TATAGCGAAA ATTTTAGGTT	6780
CTATAATATT TGTAGTGGGT AAACCACTAT AGATATTATG GAGCCTATTT ATTGTAGAAA	6840
AAAGTCCCAT ATGA	6854

## (2) INFORMATION FOR SEQ ID NO: 201:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 3895 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 201:

TCCTTGCTAA GTTTATACTC AATGAAAATC AAAGAACAAA CTAGGAAGCT AGCCACAGGT	60
TGCTCAAAGC ACCGCTTTGA GGTTGCAGAT AAAACTGACA CGGTTTGAAG AGATTTTCGA	120
AGAGTATTAA TTTACATAAA TAGCCAGTGT TTGATAGGGT TTGAGTAGAA TTTTCTCAGA	180

1180

CACTTCTGCA TCTTCATAGT TTGATATCAA AATCTGTCCA TTTTGGTAGA CTGCTGGCAA	240
GTCGATTTCa CTTCTTTAGC ATAAAAGTTA TTGAGCACTA GTAACCTTTG ATCCTCAAAC	300
TGGCGTTCAA AAGCGTAGAC TTGTTTGCTA TCTTCAAAGG CTGGTTTGTA ACTTCCTTCT	360
GAAATGATTG GCATTTCTTT ACGCATCGAA TCAAGTCTTG ATAGAAGGTA AAAATCGGAC	420
CCTGGATTTC ATTTTCTACA TTGATGTATT TATAGGATTT ACCAGCTTTC AACCAAGGAG	480
TGCCTGTTGA AAATCCTGCA TTTTCCGAAG CATCCCACTG CATGGGAATG CGTGAATTAT	540
CACGCGACTT AGCTTGAATA ATCTGGAAGG CTTCTTGCTG ACTCTTTCCT TCTCTAAGA	600
GCATCTGATA GGCATTAAGC GATTTCGACAT CCACATAATC AGCCATAGAA TCATAGTCTG	660
GGTCAATCAT CCCGATTTC TCACCCATGT AGATATAAGG TGTCCACGT GACAGGTGAA	720
TGCTGGCTGC TAGCATGGTG GCTCCTTCCT TGCGGAAGTT TTGAATATCG ACAAACGGT	780
TCAAGGCACG TGGTTGATCG TGATTATTCC AAAAGAGGGC ACTCCAACCG TCTTTATCAC	840
TCATTTCTTT ACCCCAATA TGGTAAAGAC TCTTCAACTC TTCAAAATCA AAGGGAGCCA	900
AGGTCCACTT TTGTCCATCC TTATAGTCCA CCTTGAGGTG ATGAAAATTA AAGGTCATGG	960
ATAATTCCTG ACGATCAGGC GACGAATAGA GGACACAGTT TTCCATGGTG GTAGAAGACA	1020
TTTCCCCAAC TGTCAATAAG CTATCGTCGG ATCCAAAAGT GGCTTGGTTC ATCATACGCA	1080
AATAGTTATG AACGATGGGT TTGTCTGTAT AAGCTGGCTT CCCTTCATTT TCAGGACAGT	1140
CCACTGAAAC CTCGTCCTTA CCGATCAAAT TGATCACATC AAATCGGAAA CCTTTGACAC	1200
CCTTGTCGCG CCAGAAATTA ACAACCTTGA AAAGCTCCTT ACGGACATTG GAATTGCGCC	1260
AGTTAAGGTC AGCCTGGGTC TCATCAAATA GGTGAAGATA GTATTTCCCA GTATCCCCGA	1320
AAGGCGTCCA TGCAGAACCA CCAAACCTAG ACTGCCAATC TGTGTTTGG TCTTGGATGA	1380
AGAAAAAGTC TTGATAATAC TTATCACCAG CTAGGGCTTT CTGAAACCAT TCATGCTCTG	1440
TGGAACAATG ATTAAGTACC ATGTCCAGCA TAAAGTCAAT CTTGTGCTCT TTACCGACAC	1500
ACACCATTTT CTCAAAATCA GCCATATCAC CAAAAGAGG ATCCACTGCC ATATAATCTG	1560
AAATATCGTA ACCATTATCC CGTTGAGGGC TTGGATAGAA TGGATTGAGC CAGACCATAT	1620
CCACACCTAG TTTGGCTAAA TAGGGAATTT TTTGATAAT CCCACGAAA TCCCCAATAC	1680
CGTTTTCACT GGTGTCTTTG TAAGATTTTG GATAGATTTG ATAGACTACT TTTCTTTAT	1740
CAAGTGTCAT CTGTTTCTCC TTTTCTGATA AAAGGGAGGA AGCAGTCTTC CGTCCCTATT	1800
TGTGCTATTT CAATTATACT CAATGAAAAT CAAAGAACAA ACTAGGAAGC TAGCCACAGG	1860
TTGCTCAAAA CACTATTTTG AGGTTGCAGA TAGAGCTGAC GTGGTTTGAA GAGATTTTCG	1920
AAGAGTATTA GATTCGTGTA GCGACCATGA GAGATGCTCC AGCTTGGATC GTTGTGGAT	1980

1181

AAGTTCCGGG AATAGTCGCT GTATAAGCAT CTTGGTTGGT GATGATAACA GGAGTTTCTG	2040
TCACCAGACC TGCAGCCTTA ATGACATCCA TATCAAAACG AATCAGTTGC TGACCAACTG	2100
TAACGTGATC TCCTTGGACT ACAAGACTTT CAAAACCTTT GCCATCAAGA CCTACTGTAT	2160
CCATACCGAT GTGGATGAGC AATTCAACTC CCTCGTCAGA GACAATGCCG ATGGCATGCT	2220
TGGTAGGGAA AAGAACCGTC ACTGTCCCAT TAACTGGAGA GGTCAACTCA CCTTGGCTTG	2280
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GTTCAATGAC TAGACCTTGC CCCATGACAC CTGATGCAAA AATAGGATCC GTCGCTTGAC	2340
TCAATTCTTT CACTTGGCCA GTTAGTGGG TGATAATTC TACCGAAGTA AGTTCTACTG	2400
GTTTCATGGT CACAAATTCT GCTTCTTCTT GAGCAACGAA TTCTGCCTGC AAGTTCGTAT	2460
CGCCCTCTGT TTTTGTAAG AGACCAGCCT TGCGGAAGAA GAAAGTCAAG AGCATTGGAA	2520
CAACAATCGC AACTAGCATA GTTCCTGCAA ATGGCAGCAT GTATTGAGGT TGAATAGAGA	2580
GAATACCTGG CAAACCACCG ATACCAATAG AAGCCGAGT TACATTAAAA GTAACGGATA	2640
ACATGCCTGC AAGGGCTGAA CCAGTCATCC CAGCAACAAA TGGATAAATA TATTTTACGT	2700
TAACCCCAAA AAGAGCTGGT TCTGTAACAC CGAGATAGGC TGAAATGGTT GCAGGAAGTG	2760
AAACCTGAGC CTCACGCTCA TCATGGCGAT GCATGAAATA ATAGGCAAAC ACGGCTGAGC	2820
CTTGAGCAAT ATTAGAAAGA GCAATCATTG GCCATAGGGC AGTGCCACCA GCATCCGCAA	2880
TCAATTGTGT ATCAATGGCA TTGGTCATAT GGTGCAGACC TGTGATGACA AATGGAGCGT	2940
AGAGGGCGCC AAAAATTGCA CCGAAGAGCC ATTAACTGG ACCAGTTAAA CCTGCCAAGA	3000
CAACTGATGA AAGTCCTTGT CCAATTGTCC AACCATTGG TCCCAAAACA GTATGAGCCA	3060
AAATCAAGGC TGGAAATCAAT GACAAGAAAG GTACAAAAAT CATAGAAATG ACTTCTGGGA	3120
TATGCTTGTG CCAGAAGATT TCAAGATAAG ACAGACTCAA ACCTGCAAGC AAGGCTGGGA	3180
TAACTTGGGC TTGGTAACCG ATACGATTAA CAGTAAAATA GCCAAAATTC CAAACCCAGT	3240
TTGCCCGGAT ATCAGCTGCT GGCCTTGAAG CAACCGCATA GGCATTGAGC AACTGAGGTG	3300
ATACCAAACA GATTCCGAGA ACAATCCCA AAATTTGGCT GGTCCCCATC TTACGAGAAA	3360
CAGACCAAGT AATCCCTACT GGTAAGAACT GGAAGATAGC TTCACCAGGC AACCAGAGGA	3420
AGTGATTGAC ACCTGCCCAA AACTGAGAGG ATTCTGTGAT GGTCTTGCCA TCCAACATCG	3480
ACCAATGGAC ACCTTCCAAG ACATTACGGA AACCAGAGAT CAATCCTCCG ACTATCAAGG	3540
CTGGAATAAT CGGAGTAAAA ATCTCCGCCA GAGTGGTCAT AACACCTGG ACCACGTTTT	3600
GATTACTCTT AGCTGCAGAC TTGGCTGCTT CTTTGGAAAC ACCCTCAATA CCTGAAACGG	3660
CTGTAAAATC ATTATAAAG ATGGGCACGT CATTTCCAAT GATTACCTGA AATTGACCTG	3720

1182

CATTTGTA	AA	GGTTCCTTTA	ACAGCTGGAA	TTGACTCGAT	AGCTTTAACA	TTAGCCTTCT	3780
TATCATCTCC	TAAACAAAC	CGCATCCGTG	TCGCACAGTG	AGTTACGGCA	GTCACATTTT		3840
CTTTGCCTCC	GATTGCCTGA	AGCAGATCTT	TGGCTTCTTG	TTCAAATTTT	CCCCG		3895

## (2) INFORMATION FOR SEQ ID NO: 202:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 3936 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 202:

AGGATCGCCG	CTCCAGCTAC	TAAGTCTCGT	GCAGTGCCGA	TTTATCAAAC	AACATTTTTT	60
GTTTTTGATG	ACACGTAGGA	AGGTGCCGAT	CTGTTTGCCT	TGAGGAAACC	AGGGAACATT	120
TATACTCGTA	TCACCAATCC	TACAACAGCT	GCCCTTGAAG	GTGGTGTTGA	AGCGCTAgca	180
ACAGCATCAG	GTATGACTGC	AGTGACTTAT	ACGATTTTGG	CGATTGCCCA	TGCTGGTGAC	240
CATGTAGTGG	CTGCTTCGAC	TATTTACGGT	GGAACCTTCA	ATCTTTTGAA	AGAACCCCTT	300
CCTCGTTATG	GTATCACAAC	AACCTTTTTT	GATATTGATA	ATTGGAGGA	AGTAGAAGCA	360
GCTATCAAAG	ACAATACCAA	GCTTGTCTTG	ATTGAAACCT	TGGGTAACCC	CTTGATTAAT	420
ATTCCAGACC	TGGA AAAACT	GGCAGAGATT	GCTCATAAAC	ATCAAATCCC	ACTTGTGTCA	480
GACAATACTT	TTGCAACACC	TTATTTGATT	AACGTCTTCT	CTCATGGCGT	TGACATTGCC	540
ATTCACTCTG	TGACTAAGTT	TATCGGTGGG	CATGGTACAA	CTATTGGAGG	AATAATTGTC	600
GATAGTGGTC	GTTTGTACTG	GACGGCTTCA	GGGAAATTCC	CTCAATTTGT	TGACGAGGGT	660
CCAAGCTGCC	ACAATTTGAG	CTATACTCGT	GATGTGGGTG	CAGCAGCCTT	TATTATAGCT	720
GTTTCGAGTC	AATTGCTTCG	TGATACAGGT	GCAGCCTTGT	CACCATTCOA	TGCTTTCCTC	780
TTGCTACAAA	GACTTGAAAC	CTCTTCACTT	CGTGTGGAAC	GCCATGTACA	AAATGCTGAG	840
ACAATTGTTG	ATTTTCTTGT	CAACCATCCT	AAGGTAGAAA	AGGTAAATTA	TCCAAAACCTT	900
GCAGATAGTC	CTTATCATGC	CTTGGCTGAG	AAATACTTGC	CAAAAGGTGT	CGGTTCAATC	960
TTTACCTTCC	ACGTCAAAGG	TGGCGAGGAA	GAAGCACGCA	AGGTCATTGA	TAATTTAGAA	1020
ATCTTTTCTG	ACCTTGCAAA	CGCGGCAGAT	GCTAAATCGC	TTGTTGTCCA	TCCAGCAACA	1080
ACCACTCAGC	GTCAATTGTC	AGAAAAAGAC	CTAGAAGCAG	CAGGTGTCAC	ACCAAACATA	1140
ATTCGTTTGT	CAATCGGTCT	TGAAAATGTA	GAAGATTTGA	TTGAAGACTT	GCGCTTGGCC	1200
TTGGAAAAAA	TTTAAAGTAA	AAGAAGATAA	ACAGTGGGCT	TCGACTCACT	GTTTTTGATT	1260

1183

TTCCCTCAGG CATGATATAA TGGTTACAGA AGTCTAGAAA GAGGAACGAT ATGAACGAAA	1320
TCAAATGTCC CAACTGTGGG GAAGTCTTTA CAGTAAATGA GAGTCAGTAT GCCGAACTCT	1380
TGTCCCAAGT GAGAACGGCA GAGTTTGATA AGGAACTACA CGATAGGATG AAGCAGGAAC	1440
TGGCCTTGGC TGAGCAAAAG GCCATGAATG AGCAACAGAC TAAACTGGCT CAGAAGGATC	1500
AAGAAATTGC GCAATTACAG AGTCAGATCC AAAACTTTGA TACAGAAAAA GAATTGGCCA	1560
AGAAAGAGGT TGAACAGACA AGCCATGAGG CTCTCTTGGC TAAGGACAAG GAAGTACAGC	1620
TCTTAGAAAA TCAGTTGGCT ACCTTGCGTT TGGAGCATGA AAATCAACTA CAAAAGACCC	1680
TTTCTGACCT AGAAAAAGAA CGGGATCAGG TTA AAAACCA ACTACTTTTG CAGGAAAAGG	1740
AAAATGAATT ATCTTTGGCT TCTGTTAAGC AAAACTACGA AGCCCAGCTC AAGGCAGCTA	1800
GTGAACAAGT CGAGTTTAT AAGAATTTA AGGCTCAACA ATCTACAAA GCGATTGGGG	1860
AAAGCCTAGA ACAGTATGCA GAGAGTGAGT TTAACAAGGT TCGTAGTTTC GCCTTTCCAA	1920
ATGCTTACTT TGAGAAGGAT AACAAGGTCT CTTGCGGTGG GTCTAAAGGG GACTTTATCT	1980
TCCGTGAGTG TGATGAAAAT GGAGTTGAAA TCATTCTAT CATGTTTGAG ATGAAAAACG	2040
AAGCGGACGG AACAGAGAAG AAGCACAAGA ATGCAGATTT TTACAAGGAA TTGGACAAGG	2100
ACCGTCGGGA GAAGAACTGT GAGTATGCCG TTTTGGTGAC CATGCTTGAG GCTGATAATG	2160
ACTACTTTAA CACAGGGATT GTTGACGTCA GTCACGAGTA TGAAAAATG TATGTTGTTT	2220
GTCCTCAATT CTTTATCCAA TTGATTGGTC TCTTACGTAA TGCGGCGCTA AATTCCCTAA	2280
AATACAAGCA GGAGTTGGCC TTGGTTCGCG AGCAAAATAT TGACATTACG CATTTTGAGG	2340
AAGATTGGA TGCCTTTAAG CTAGCTTTTG CTAAGAACTA TAATTCAGCT TCGACTAACT	2400
TTGGAAGAGC TATTGATGAA ATCGACAAGG CCATCAAACG CATGGAAGAG GTTAAGAAAT	2460
TCCTGACCAC ATCTGAAAAC CAACTCCGTT TAGCTAACAA CAAATTGGAA GATGTCTCTG	2520
TTAAAAAATT GACCCGGAAT AATCCAACAA TGAAAGCGAA GTTCGAAGCA CTGAAGGGGG	2580
AGTAGAAAGC AAAAATGAAC GGTATTATTA ACTTAAAAAA GGAAGCAGGA ATGACCTCGC	2640
ATGATGCGGT TTTTAAACTG CGTAAGATTT TGGGAACCAA GAAAATTGGT CATGGTGGAA	2700
CCTTGATCC GGATGTGGTG GGTGTTTTGC CGATTGCGGT TGGCAAGGCG ACACGCATGG	2760
TCGAGTTTAT GCAGGACGAG GGTAAAGATCT ATGAGGGGGA AATCACTCTG GGCTATTCCA	2820
CGAAGACTGA GGATGCTAGT GGGGAAGTGG TCGCAGAAAC CCCTGTTTTG TCTCTCTTGG	2880
ATGAAAAGCT TGTGATGAA GCGATTGCTA GCTTGACTGG GCCTATTACT CAGATTCCCC	2940
CTATGTATTC GGCAGTTAAG GTTAATGGTC GCAAGCTCTA TGAGTATGCG CGTGCTGGTC	3000

1184

AGGAAGTGA	CGCTCCAGAA	CGTCAGGTGA	CCATTATCA	ATTTGAGCGA	ACAAGTCCGA	3060
TTTCTTATGA	TGGCCAACTT	GCCCCATTCA	CTTTTCGTGT	AAAATGCAGT	AAAGGGACGT	3120
ACATCCGTAC	TTTGTCAGTT	GATTTGGGTG	AAAAGCTTGG	TTATGCGGCT	CATATGTCCC	3180
ATTTGACTCG	TACTAGTGCT	GCTGGCTTAC	AATTAGAAGA	CGCTCTTGCC	TTGGAGGAAA	3240
TTGCTGAAAA	AGTAGAGGCT	GGGCAATTAG	ATTTTCTCCA	TCCTTTAGAG	ATTGGGACAG	3300
GTGACCTTGT	CAAAGTTTTC	CTAAGTCCAG	AAGAGGCTAC	AGAAGTTCGC	TTTGGTCGTT	3360
TTATTGAGCT	AGACCAAACG	GACAAAGAAC	TGGCTGCCTT	TGAAGATGAT	AAATTGTTAG	3420
CCATTCTAGA	AAAACGGGGC	AATCTCTATA	AGCCAAGGAA	GGTTTTTAGC	TAGATCGTTT	3480
AGGAATAAAA	ATCGGGTGAT	AGATAACAAT	TGCTTGATAA	AACCCCATAC	TAATAGTAGA	3540
ATGGTTTTTG	GAATTATAAT	ATTCCAATTG	TTGCGAGTTG	TAGGTACTCA	AATAATCTAT	3600
ATAGAAATTT	AGAGGTGTGA	AATGAAGCAA	TTTAAAATTC	TTTCAGATAA	ATATTTAGAG	3660
TCCATTACAG	GTTCTGATGG	GAACCTTAGGC	CCAGGATTTG	GTGTGATAAT	TCCATGATGC	3720
GAAATGAGTT	TCGAGAAAGG	GTGGAGCAAC	TTCTTCAACA	AAAAGAAATA	AATGAAAATA	3780
GTGAGTTGAG	TCACCTGTTT	CGTCTTGCTA	TACAAAATTT	AGACAGAAAT	GAAAAATACC	3840
AATCGGTCAT	GGCCAATTTG	AGTCAAGGGT	TGTCACTTTA	CCTCATGACG	CATCATTACC	3900
AGGCACCTAA	GTCTGTCATT	GATTTTGGTT	TATGGA			3936

(2) INFORMATION FOR SEQ ID NO: 203:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 3230 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 203:

CATCCAGCAA	CTGCTCCTCT	GAGCGTTTCA	AAATMGATGT	AATTTTCTA	GTTTTTCTA	60
ATAAATGTGC	CATTTTTCAC	CTCGAATTTA	ATCGCTATCA	TTATAACATA	AAAACGCTC	120
TTTTTCAATA	ATTATCTGAA	AATTCCTTAT	TGACTTGCAT	TGACTTACAA	TTTAATTAAA	180
AACCAGAATA	TTTTTAATTA	AATTGTTCCT	TTTCTATTGA	CAAGTGCCT	ATTTTGTGT	240
ATCATAATAT	TATAAAAGAT	AATATAATAA	TTTTATTTGT	CTTTTCACAT	TCGGTCTCCT	300
TATATAAAAA	AGCGATTCAT	TTTGAACCGC	TTTTTCTTAT	TTATCGCCTT	TGTTACGAAT	360
AACAAAGCCT	GTTTGCTTTT	CGCTTAAAGT	ATTGCGTGGT	TTTTTATTAT	CCTTACGGTA	420
ACGTTTTTCC	TTATCAAAAC	GATCGTTGCC	ACGACTTCCT	TTTTTGAAC	CATCACGGCG	480



1185

ACCATTGCCA CGGCGATCAC GCTCTCGACG GTCGTCCCCA CGACGGCCTC CACGACCTCC	540
CTTAGCTTTA CCACCGAAAC CATTACCTGA TGGTTTAAAC GGTAGTGGGT TTTCACGTGC	600
AATCTCCACT TCTGGAAGGC TATCTGGGTC TTGGACTGTC AGACTCAAGA TATACATTGC	660
CAATTCTTCT GGAGTAACT CAGCAGCCAA TTTGCGAGCA TCCTTACCAA ATTTCTCAAA	720
GTTGGCACGA ATGGTTTCAT CTGCAAAATC ACGTTCGATT TTCTTGAGAG CTACCTGTTT	780
TTTTGATTGG AAGGATTCTT CTACACTTGC AGGTTTGAGA CCTTTCATGC GTTCTTAGT	840
CAAGTTTTCA ATGATTGAA GGTAAACCCAT TTCGTTTGA GCAACAAAAG TAATAGATTG	900
ACCTGACTTA CCAGCACGAC CTGTACGACC GATACGGTGA ACATAACTCT CAGGATCTTG	960
TGGAATATCG TAGTTGTAGA CATGGGTAC ACCTGAAATA TCCAAACCAC GCGCTGCAAC	1020
GTCTGTGCGA ACCAAAACAT CAAGATTGCC ATTTTAAAG TCACGAAGGA CACGAAGACG	1080
TTTGTMTTGG TCTAGGTCG CATGAATTCC TTCTGCACGG AAGCCACGAA TTTTCAAACC	1140
ACGAGTCAAT TCATCCACAC GCGTTTGGT ACGACCAAAT ACAATAGCGA GTTCTGGTTG	1200
TGCCACATCC ATGAGACGAG TCATGGTGTC AAATTTTCT TGTTCCTTAA CACGGATATA	1260
GTA CTGGTCA ACCAATTCTG TTGTCAATTC CTTAGCCGCA ATCTTGACAT GTTCAGGGGC	1320
TTTCATAAAC TGAACACCGA TACGTTTGAT GGCATCTGGC ATAGTGCTG AGAAAAGCAA	1380
AGTTTGACGG TTCTCAGGTA CACGGGAAAT AATGGCTTCG ATGTCTTCAA GGAAGCCCAT	1440
GTTAAGCATT TCATCCGCTT CGTCAAGGAT AAGGGTTTCA ATGTCTTGTA ATTTCAAGGC	1500
CTTGCGTTTA ATCAAGTCCA AGAGGCGACC TGGAGTTCCC ACCACAATAT GGGCACCAGA	1560
TTTAAGAGCC TTAATTTGTT TTTCAATGCT TGATCCGCCA TATACTGAAC GGACTTTGAC	1620
TCCCTTACTA CGACCAAAGC GGAAGAGTTC TTCTTGACTT TGGACAGCTA GTTCACGAGT	1680
TGGAGCGATG ACCAAGGCTT GGATAGTCGC TTCTTCTGTA CGGATTTTTT CAAGGGTAGG	1740
CAAGCCAAAG GCTGCAGTTT TTCCTGTACC AGTCTGAGCT TGACCGATAA CATCCTTGCC	1800
TTCAAGGGCC AAAGGAATAG TTTGTTCTTG GATAGGACTA GCTTCTACAA AACCAGCTTT	1860
TTCAATTTCT GCTAGCAAAT CAGCAGACAA GTTTAATTCA TTAAATTTC CGTTATTCTT	1920
CTTTCTAAAG GTGGTGCGAA GCCACCCTAT AGGGCTTAGT TTATACTTTT CTTTTATGA	1980
CGTATTTTCA TATACTAGA TATAAAATCG TGTGCTTCT TTTCCACAAA AGAAAAGTAC	2040
TGTTTTCTTT GCAACCTATC TAGTATAACA CAAGACCAGA GCAAAAGATA GCCCATTTT	2100
TACAGAAAAT CATGTAAGCG CTTTTTGA CTCTTTTTTG ATTGAACGAC CTAGATAATA	2160
AGACAAAGCC AAGGCGATAC TGTATAAAAT GAGAAAAACG AACAAGGTTT GTGTGTACGA	2220

1186

ATGAGCCATT TTATAAGTCT CTGCTAATAA AATAGGTCCC GCTAAACCAG CCATTGCCCA	2280
AGCTGTAAAA ATATAACCAT GCAGAGCGGC CAATTCCTTG GTTCCAAAAA TATCACTGAG	2340
ATAAGCTGGA ATCAAAGAAA AACCAGCTCC ATAGCAAGTC ATCAAATAG ACATAGCAAC	2400
TACAAATAAA ACGGAATCTG TAAAGAGCCA AAGTGAGAGA GAAAAGAAAA GATTGACAAG	2460
CAGTAATATA CTAAAGGTTA GAGGGCGACC GATATAGTCA GACAAACTCG CCCAGAGCAA	2520
GCGACCAAT CCATTGAAAA TCCCCAAAAC ACCCACCATT ACTGCTGCAT GACTTGTAGA	2580
CAAGCCAGCC ATCTCCTGTG CCATTGGCGA TGCCGCTGAA ATTAAGCCTA AACCACAAGC	2640
TATGTTGATA AAGAAAATAA TCCAAAGCAT ATAAACCGA TTGCTTTTPTA GAGCCTGATT	2700
TGCAGCCATT CCTTGCGTCA AAGAGGCTGT TTTTCTTTC CCTGAAGAAG ATAAAAATTGC	2760
AAGCTCTTGC TCATTTGGAC GCTTAATGAA TTGTGAAGCT AGGAGCATGA TAATAAAGTA	2820
ACTTGCTCCT AAAATATAAA AAGTTTCTAC AAGCCCTACC CCTGCGATGA GGTGTTGCGC	2880
TATGGGACTA GTCAATAAAG AAGCAAAACC AAACCCATA ATCGCTAAAC CTGTTGCGAG	2940
ACCACGTTTA TCAGGAAACC ATTTTATAAT CGTCGACACA GGGGTAATAT AGCCTGCTCC	3000
CAAACCAAGC CCACCTAAAA TGCCATAAGC GAGATACAAC AACCACAGCT CTGACGGTCT	3060
ATTGCAAATC CTGTTAAGAT ATTTCCACCT GCGTATAGAA AAGCAGATAG ACTTCCCATG	3120
ACTTTCGGAC CAAATTTTTC TACCAAACGC CCCATAAATG CAGCCGATAA GCCCAAACAA	3180
AAGATTGCTA GACTAAAGGC GAAGGCAACA GAAGCCTGAT CCCATCCCGT	3230

## (2) INFORMATION FOR SEQ ID NO: 204:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 5096 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 204:

CCTATGAAGA CTGTCCCAAC TGGGTGTCCT TCTAGGCTAT CTGGTCCTGC CACTCCAGTC	60
AAACTAATTC CAAAATCAGA CTGGGTCTTG CTTCGTGCCT GCTCAGCCAT CTTCTGAGCT	120
GTAAATTCAG ACACCACACC ATGTTCTTCC AAATTCCTGG CAGGAATATC CAACATCCTT	180
GATTTTTCCT CCAAGCTATA GGTCACAAAA CCACCCTTAA ATATACTTGA AACTCCAGAA	240
AAATTCGCCA CGGTAGCTTG GAAAAGACCT GCCGTCAAAC TCTCTGCAGC CGCGATGGTT	300
TTCCCTTGCC TTTTCAGTTC TTCTACCACA ATGCTGGCTA AACTAGTTTC TTCCCCATAA	360
CCATAGCAAA AGTCTCGTAA AGAAATTCCT TCGAAAGTCT GGCAGTCCAA GATTTGATT	420

1187

TCCAAGATAT CCAGCGCTTG ATTCGCCTCT TCTTGACTGC TAGCCTTTGT TGACAGACGT	480
AGAGTGACTT CTCCTGTCTT GGCATAAGGG GCCAAGGTAG GATCGATCTG ATTATCAATT	540
AAATCAGCCA AAATCGTAAC CAACTGGCTC TCGCCAATCC CAAAGAAACG AAGAACTCGG	600
GAATACAGCT TGCTCCCTGT CATCAACTTG GGTAGAAGTT GGTTTAAGAC CATGGGTTTC	660
AATTCACTTG GCGGACCTGG AAGGACGACA TAGGTCACTC CGTCTACTTC TAATTTTCCT	720
CCAACAGCCA GTCCTGTTTC GTTTGGCAGT GGAATCGCTC CTTCTACAAT TTGAGCTTGT	780
CTTTCGTTAT TCGGTGTTTC GGCATAGTCT GGTGCGAGGG TAAAAAGAT ATCCAACTTC	840
TCCTGAGCCT GAGGATCAAA GACTAATGCT TTCCCTAAAA ATTTAGCTAG GGTTCGTTTG	900
GTTAGGTCGT CCTCAGTTGG CCCCCAACCG CCTGTCAAAA TCACCAGACT GCTACGTTGA	960
CTGGCAATCT CAAGCAAAGA CAAGAGACGA ACTTCATTGT CTCCTACAGC CGTCTGAAAA	1020
TATACATCTA CCCCATCTC AGCTAGTTT TCCGACAAAA ACTGGGCATT GGTGTTGACA	1080
ATCTGCCCTG TCAAAATCTC TGTTCCAACA GCAATGATTT CTGCTTTCAT GTTTCCTCCT	1140
ACCTATCTAT TCGTATTTTT TTGAAAAAT CGCAGGAATT TTCCTACGAT TGATTTTTTT	1200
ATTTGTATCA AAAGTTAATT ATCTTCATCA CCAACAGGTG CTCTGCCAAA TAAATCTTCA	1260
AATAAAACCG CATTGGTTTC AAGCTGAGTA ACTTCTTCTT GTCCCAAAGA ACGTCGGAGT	1320
AGATTTTGCA TTTCCAACAT ATGTGCTCTC GAAACAATCT GGTAAAGAAC ACCTGAAGT	1380
ATCTCTCCTT CACCCTGCAA CTGCTGAGTT TCAATGGTTT TAAATGAATC TTTATAGCCT	1440
AGCAAGTTAG GGATACTTTT TGCAGACAAA TCAATATTGG TCTGCATATT GTCACTCAAA	1500
GCTTTTAGAA TCTCTTGATA ATGACCAATG CTATTTAAAC TGAGAGCTTT TTCCATGACT	1560
TTTTGAATAA CTTACAGTTG ACGTTTTTGA CGACCATAAT CCCCCTCAGG ATCTGGTAA	1620
CGCATTCGTG CATAGACTAG GGCTTCTTCT CCCCCAATAT GTTGCTCCCC AACACCGATA	1680
GAAATAGTAT TAAATTCTTC TTGGTCACTG ATAGAAATTG GGAAACCTAG GATATTATTG	1740
ACTGTAATAC CTCCTACTGC ATCCACTAGT TTTTGCAATC CTCTCATATT GACCATCACA	1800
TAGCGATCAA TATGGATATT CATCATTTTT TGAATGGTTT CTATAGCAAG CTCTGTCCAA	1860
CCATCTGCAT ATGCTGAGTT CAGTTTCGCT TCATGAGCCT GACCATTCCC TGATTCAATG	1920
CGCGTCAGAA TATCCCGCTC TAAACTCATC ATTGTTGTTT TTTTCGTTTT AGGATTCACT	1980
GTCATCAAGA TCATGCTATC ACTTCTACCG ACCCAAGTTT CAGTTCGTTT AACATTTCCT	2040
GTGTCCACTC CCATTAACAG AATGGTTAGA GGTTCAGTCG CTTCAATAAC CTTGGTTTCT	2100
TCACCGATTT TTTTATAGGT TTTAGCTAAG GTTCTGTCC CTTGTTGATA AATAGTATAA	2160

1188

GCAAAAACAC	CTACTCCTAC	TACAGTTACA	GAAAGTAAAG	CTAGCACCAT	TCCAATAATT	2220
TTTTTAACCA	TATTTCTACT	AACCTATCAG	TTTACCCATC	AAGTAAACAT	CGATAAATTT	2280
CCCTTCTTCT	ATATATGCCC	CACGCTCTTG	GCTACCTTCA	ATGACAAAGC	CATGCTTTTG	2340
ATAAAGATGG	ACTGCTGCTT	GATTACGAGT	TTGGACAGTC	AGTTGGAGAC	GACGCAGAAT	2400
GCCACTTGCT	TGTGCCCACT	CTATCGCTTC	TTCTAGCAAC	AAACTTCCCA	AGCCATTATT	2460
CCAATATCTT	TTTCCAATCA	CAATGAAGAG	ATCTCCAATA	TGACGGACTC	TCTTACGCTG	2520
ATCAGCTGTA	ATATTTACAA	TACCAGCAAT	TTTGCCATTT	AAGAATGCAA	GTAAGGTTAT	2580
CTGATTGTCC	GAAGTAGCTT	GCTTGTGAG	GAATATTTCC	ATCTCCTCAC	TAGTCAAGAG	2640
AATACCATCT	CCGTCTAGGC	TGGTAAAGTC	TGTCTCCAAA	CTCACACGAT	TTAAAAAGGC	2700
CACTAATTCA	GCTGCATCTT	TGGGCTCTGC	TTCCCTAATG	AGCAATTCAT	ACTCCATATT	2760
GAAGCTCCTC	TAACAATTTC	TCAGCACGCA	AACCCCTTGC	CTGAAAATTT	AAACGGCGTC	2820
CATCTGCTTC	TTTTAGAATT	TCCAATTCTA	AATAAGCATC	TGGCAAGGCA	TCTCCTAAGA	2880
GATTTCCCCA	CTCAATAACA	GTCACGCCGC	CACCAAAGAT	AAACTCATCC	AAGTCGATAG	2940
AATCAGCATC	TCCTTCAATA	CGATAAACAT	CTAGGTGATA	AAGTGGAAGT	CGACCTTCAT	3000
ACTCTCTCAC	GATAGTATAG	GTGGGACTTT	TAATCATTTG	AGAAATCTGT	AATCCTTTTG	3060
CAAGTCCTTT	AGTAAAGGTC	GTTTTACCTG	CACCCAGTTC	TCCAGTTAAG	ATTAATAACAT	3120
CATTCTTTGC	TAATAGATGG	CCCAAACGCT	CCCCTAAGGC	TTGCAACTCT	TCTTCATTTT	3180
TTGTGTACAT	ACTCTTATTA	TACCAAAAAC	TTTTCTTTTG	TGTCTATTTT	CCTACTAAAC	3240
TTATCATCAT	AACATCCATA	AAAAACAGGC	TTTCTCTAAA	AGAAAATGAG	CGTAACAATG	3300
ACCAATACAA	GATCTCGGAA	AATATGACCA	TAAAAGGAAA	CTTCCTTCTT	AACCGAATTT	3360
GGGACAAGAT	AGGCTGCAAA	AAACAAGCCC	AGTCCAATAT	AAATCAGAAG	TGAGACAATG	3420
GTCATTGGAT	TTCTTAAGAA	AAGAAGTGTT	GCTAAAATAG	TCACCAACAC	TGTCTTTTTT	3480
CTGTCCAGCA	TAGCAAGAAA	ATCGCGCACG	TATTTTTTCA	AGGGTAAAAA	AATCAGCAAA	3540
TCTAGCCCAA	ATAGGAAAAA	GAAGGATGGC	AATAAAAAGT	CAACTAATTC	TTGCTGCAGC	3600
GTATTTTTGA	TGAACAAGTT	ATCTGACAAA	ACAAGAACAG	CTCCTAACAA	ATTAATTAAG	3660
AGTAACATAC	TGTAAAAAAG	CTTCACCGAC	TTCTTACTGG	CTAGGACACT	ATGGACTTCT	3720
TGCTTACGGG	TATAAAGATA	ATTTACTCCA	GCACAGATTC	CTGAAACGAA	AACCATGCTT	3780
CCGATGAAAA	AAGCTGTACT	TTGTTTAAAG	GACAAGATGC	ATTCTTCCA	TAGGAAACAG	3840
CTACTCAAAC	TGATTTGAAT	TAAAGCTAAC	AAAAATAAGA	TTCTCATTTGA	TTTCATCTTC	3900
TCTCTCCCTT	CCTACCAATC	ATTATACTAG	GAGAAAAGAG	AGAACTGTTT	CTAATCTTCT	3960

1189

CAAATGTCTC TTTAAGACGC TAAACAAACA CTAGAGACTA ATACTCAATG AAAATCAAAG	4020
ATCAAAC TAG GTAGCTAGCC ACAGGTTGCT CAAAACAGTG TTTTGAGATT GCAGATAGAG	4080
CTGACGTGAT TTGAAGAGAT TTTGAAGAA TATAAATTTG AAATCATGAA AATCCGTCAA	4140
ACGGGTGGTT GTTTTGTCTC GCACCTCAGC GAGCGAGACG GACTCAGAGT CACATAATTA	4200
TAAGGCTGAT AGTATTAATC TAACTATCAG CcTmCAGGTT ATTTAACGTT TCAGAAAAAC	4260
TATAATGTCA AGATTAACTA AACAGTATCT AGTTCCTTCA AATAATTTTC TATCTTCATC	4320
AACATTAAAG GATTGTTATA AATCTTACAT AACTCTCTTG CTTCTATATA ATAATTTTGT	4380
ACTTGTTCTC TGTCTAGAAA TTTGGCTCCA GCATTTCTTA CAAGAATAAG TAGAGGAGCC	4440
AATTGGTAGC TTGTCTGTCT TTGTTTACAG AGTTCAATCG TTTCAAGAGC TTCTTGGATG	4500
GCTTCATTAT ATTTTTCCTT TGATACTAGG TAGTGAGCGT AGTTGTAACG AACTCTGATG	4560
TAGCCAAATA AAAACTCTTG ATGGTCCAAA TTTTGTCTCT GATACAACTC TATTAAATGA	4620
GAGTAGTTTG CCTCATATTC TTGTTACGA CCCACTAAGG AATAGAAATT AGATAGAGTA	4680
TTCAACGCCT TTAAATAAAT CAGAGTATTT GAAGAGACTT TTAATAATAT ATTTTCCAAT	4740
GACGAAATTG CCTCACACTT ACTGTCATAT TGATAGAAGT CAATTATAGA TTTAATCCAT	4800
TCAAGGTAAG TTCGGTCTTC TAATGTTAGA AAAGTGCTTC GTTCTACTTC TATTTTATAA	4860
AGATATTCTA AATCGTCATA ATTTCTGTCA TCTAATAGGC GAGCAGATAG ATGTTTGAAA	4920
TTAGAGAGGT TAGACTTAAC TTCGATTTGT TCATTGAAAA AGTAATCCAA AGGGACTTCA	4980
AGTCGTTGAG AGAGTTTGAA TAACAAGTCT GCGGAGGGAA TAAATGACC TCTTTCAATT	5040
TTACTAATCT GGCTTTGTTT ACAAATTCCT TCTGCAAGAG TTTGTTGGGA GAGTCT	5096

## (2) INFORMATION FOR SEQ ID NO: 205:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2395 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 205:

ACAAGATAAA AATAAAGGAT TACAATGGGG AATATAAAGT AAACCGGTAA ACCTAAAAAG	60
AAAGGAGAAA AGATGAAAAT TGTACTTGTA GGGCATGGAC ATTTTGCTAC AGGGATTAT	120
AGTTCTTTAC AATTGATTGC AGGTAATCAA GAAAATGTGG AGGCGATTGA CTTTGTGGAA	180
GGAATGTCAG CAGATGAACT CAAGCAAAAA ATCTTACTTG CAATTTCAAA TGAAGAAGAA	240

1190

GTMTTAATCC TAAGTGATCT CTTGGGAGGA TCGCCATTCA AGGTTTCTTC TACCATAATG	300
GGAGAAAATC CAGCCAAGAC AATGAATGTT CTCTCGGGTT TGAACCTAGC CATGTTAATG	360
GAAGCAGTCT TTGCTAGAAT GGCTCATAGC TTTGATGAGG TTGTTAATAA ATCAGTAGTG	420
GCGGCCCAGG GCGGAGTCGT AAATGGTAAA GAATTGTTTT CAACGGATGC AGAGGAAGAG	480
GAAGAAGATT TCGAATCGGG TATTTAAAGG GTAAAAGAAT GATAAAAAAG GTTACGATTG	540
AAAAAATAAA ATCGCCTGAG CGCTTCTTAG AAGTACCACT TCTGACGAAA GAAGAAGTCG	600
GCCAGGCAAT CGATAAGGTT ATTCCGCAGT TAGAACTCAA CCTTGACTAT TTCAAGGAAG	660
ATTTCCCGAC GCCAGCTACC TTTGATAATG TCTATCCAAT CATGGATAAC ACGGAATGGA	720
CCAATGGTTT CTGGACAGGA GAACTGTGGT TGGCTTATGA ATACAGTCAA CAGGATGCAT	780
TTAAAAACAT CGCTCATAAA AATGTTCTTT CTTTCCTGGA TCGTGTCAAT AAGAGAGTAG	840
AATTGGATCA CCATGATCTC GGCTTCTTGT ACACACCGTC TTGTATGGCT GAATATAAGA	900
TAAATGGAGA TGGAGAGGCT AGAGAAGCAA CCTTGAAAGC TGCAGATAAG TTGATTGAAC	960
GCTATCAAGA AAAAGGTGGT TTTATTCAAG CTTGGGGAGA CTTGGGCAAG AAAGAGCATT	1020
ACCGTTTGAT TATCGACTGC TTGCTCAATA TCCAACCTTT ATTCTTTGCT TATCAAGAAA	1080
CAGGCGATCA AAAATACTAC GATATTGCAG AAAGCCATTT CTATGCTTCA GCTAATAATG	1140
TAATCCGTGA TGACGCTTCG TCCTTCCACA CCTTCTATTT TGATCCTGAG ACAGGTCAAC	1200
CCTTTAAAGG TGTAACGAGA CAAGGGTATA GTGATGATTC ATGCTGGGCA CGTGGTCAAT	1260
CATGGGGAGT CTATGGTATT CCTTTGACTT ATCGTCACTT AAAAGACGAG TCCTGCTTTG	1320
ACTTGTTTAA GGGTGTGACC AATTATTTCT TGAATCGTCT GCCAAAAGAT CATGTGTCCT	1380
ATTGGGATTT GATTTTAAAT GATGGTAGTG ATCAATCACG AGATTCTTCA GCAACAGCTA	1440
TCGCCGTCTG TGGGATTCAT GAAATGCTAA AACATCTCCC AGAGGTGGAT GCTGACAAAG	1500
ATATTTATAA ACATGCTATG CATGCCATGC TTCGTTCCCTT GATCGAACAT TATGCAAATG	1560
ATCAATTTAC CCCTGGTGGG ACAAGTCTCC TCCACGGTGT GTACTCATGG CATTCAGGTA	1620
AAGGAGTGGA TGAAGGCAAT ATCTGGGGTG ACTACTATTA CCTAGAAGCC CTTATCCGTT	1680
TCTACAAAGA CTGGAACCTA TATTGGTAGG AGGAGAAATA TGACAATGCC AAATATTATT	1740
ATGACCCGTA TCGATGAACG GTTGATTCAT GGACAAGGAC AACTTTGGGT AAAATACCTA	1800
GGTTGTAATA CGGTCATTGT TGCCAATGAC GAAGTAAGCA CGGACAAGAT GCAACAACT	1860
CTGATGAAAA CAGTTGTGCC AGACTCAGTT GCCATGCGTT TCTTCCCTTT GCAAAAGGTG	1920
ATTGATATCA TTCACAAGGC TAATCCTGCT CAAACGATCT TTATCGTTGT AAAGGATGTG	1980
AAGGACGCTT TAACCTTGGT AGAAGGTGGT GTCATATCA AAGAAATCAA TATTGGGAAC	2040

1191

ATTCACAATG CCCCTGGTAA AGAGCAAGTG ACACGCTCCA TCTTCCTGGG TGAAGAGGAC	2100
AAGGCGGCCC TCAAGGAATT GAGCCAACT CATCAAGTAA CATTTAATAC GAAAACAACT	2160
CCAACAGGAA ATGATGGAGC TGTTCAGTC AACATTATGG ACTATATTTA ACAGAGGAGA	2220
TCGTTATGTC GATTAATGTA TTTCAGCGA TTTTAATTGG ATTATGGACA GCTTTCTGTT	2280
TTAGTGGAAT GCTGTTAGGA ATTTACACCA ATAGATGTAT TGTTCGTCA TTTGGTGTCC	2340
GAATTATTCT AGGTGATCTG TCATGCTCTT GCAATGGGAG CCAATGGTGA ATTGG	2395

(2) INFORMATION FOR SEQ ID NO: 206:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3342 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 206:

CCTTCTTTAG AGGTAAATTT TGCAAAATCG TCGATTGTTA TATAAGGATT ATTATAGAGA	60
CTGTTTCGCA AGAATCTCTG ATATGTTTTT GAATCTTTTG AATACAAAAC TATCTCTCTA	120
ATAGCATTGC CATCTGTTC ATCAATTGGT AAACATACCG TAACTAGAAA AAGAATTATA	180
TTCAAAATAA AAAATTCTGA TCGGTACGGC ACAAATCCCA AAAGTGCTAA TATTGCGACA	240
ATTAGGTTAG CTCCACCTCC CCCAAAGAAG TAGAACACCA AATTCCTATC ACTATTTTTT	300
TCATTAGTAA TGTTTCTATT ACTCATTGTA CAATAACCGA ATGCTAATAA CACTGGAAAT	360
TTGAAATATA TTTTTTTTCT GAAATAGAAG AAAAAGGGAG TAGCAAGCAT CTCTAGTTTA	420
TAAGATAAAC ATCTTCCAC TAAAAAATGA CCTAGTTCAT GTAATGTAAT TGATATTAAC	480
GAAATTAAAA TCAATCGAAA ATAATAGATT AATGAATCAT TTGGAAAAAT TATCAATAAT	540
AGGAACAATA ACGGAATCAA ACATAAATAT ATGACAGAGT TATTTAATAT TTTCAACATA	600
ATACCATTCC TCTAACTAT TAGCTTCAAA AAGGCGTTTT TTCTCCCAAT ACATCTTCTC	660
AAAATGTTTG GAATCATAAT TTTCTAAAAT TAATTTTATG TCTGGTAAGC TCTTCTTGA	720
TAATCCGTTG TTTTGTACTT AATTTTCCCT TCAAGTACAT CTTCAATTTT ATAAGTTGCC	780
TCCATCAACT GAGCCTCTGC AATATCTTTG AGTGAATTGG TAATTGAAAC TTGGTGTAAT	840
ATCTGTCTCTs CCATATATGA AAATATATCT CTAAGATATT CTGACACATT ATCAGAGCCG	900
TTACTCTCAG CAACATCTAA TGTTACAACA AACTTTCCAG CTAATCGAAA AAGATGGCTC	960
CACCCCCAA TCCTTTCAAT AAAGTTTTTT GTGTCCACAG ATACGTTTTG TAAATATACA	1020

1192

GGAGAAGAGA TAATTATAAT ATCAGACTCT AATAACTCTT TTTTATAAC ACCTCCATCA	1080
TCAGCATTAC TTTGCCTATC AATTCCTTTC TTAACAACCT CTTCTGAATC AGAATTAGAT	1140
ATTTCTAGCT CTGAATTGAA AGGTGTCCTG AAAGATATAT CAACATTATT TCTACTAGAA	1200
ATGATACTTG AAAGTCTCTT AGTATACTCT AAAGTCTTAG AGTTATGATT TCGCACTCCT	1260
GCATATATAA ATATTTTATT CATTTTAATT CATCCTCTCA ATTTGAATTT AGTAGATTTT	1320
TCAAGATAGT ATGGTACAAA AACAGACTTT TGTGACTCA CATTATTACA TATGTTTTGT	1380
ATTAAACCAA AATCAATACT ATTTTGGAG TAATTTTGAT TTTAGTTTAA AATCATTTCT	1440
ATAACAGTAG CATATACCTC AAGCCGTTTA GCAATTAGAA TAGAACTTTT CTTTATTATA	1500
TTATTATCTC AACGAAAAGC TACACTATTA AAAATATTTT ATAGAATTAC ATATTAACT	1560
AGTCAATCTT GGTATTTTTA TATTGCTTAA TGAGTGGACA CCTCTATTTT AGAAACAAAA	1620
CTATAAATTA AGCTAGATTT CAAGTAATGA GGGGATAACT ATCTTTTTGT CATCTGATT	1680
CAGTGGGATA TACCTTAAAA AAGTATAAGC AATACCAGTC ACACCTGTAT ACAAAGAAAA	1740
ATCTGGGAAA TTGCTTGTTT GGACGATACG ATACTCTCCT TCTTTTGATT TATTCATTAC	1800
AACACTACAC AATAAAGACT CCAATTCCAT ACTAGTATCC ATTTCTTTCA TGTAGTCGAT	1860
GTAAAAATTT ATTATGGCCA TACTTCCATG GCAAAATGTA TCATTATCTA AACTAGCTAC	1920
AATTCCTCTT GGAACACTTT GGGGATGATT AACTAATGTC CCAAATCTC CACTACACCA	1980
CTTCAAAGAA TGAATTTTGA TTTTCTCCCT AGGAACTAGT TGTAATAATTA ATTCTTTATA	2040
TTTTTTAAGT CTTGTCACTT TATAAATATT TTTTAATGTA AAAATTACAC CTGATAGTCC	2100
ATGGCCAAAA CTATATCCAA AATTACTATT ATCTCTCTCG CTTACATCAT TATATAGCGT	2160
ATCACCTAAA CTTAATACTA GCCTTAGAAC ACGTTCCTTC TCTATTCCTC TCCTATAATA	2220
TCTTACCAGT GTATTAAATTA AAGGTAGAAG ACCATTAATA TAGTCAGACT TGTTTGAAAC	2280
ACTTGCAAAA TCAGTCTTTT CAAGCTCAGT TAAAACACTC TTTATATAAT TTAAGCATGC	2340
GAGAGTATTT GTATCGTAAT CCTCTATAAT GGATAGAACA ATGAAATATC CTATATCCCC	2400
AGTTAAACCA AATGTGGTCT TAGATAAAGA AACAGATGGC GGAATTGCAG ATAACATTTT	2460
ATTGTACAGT TGAGTATATG ATGATTTATC TTTCAATAAT TTTACATAGT ACATAAACAG	2520
TAATATTCCA GCTCTACCCC TATACATATC ATTTCCCGTT TGTCAAGAC ACCATTTAGA	2580
ACCTTTAAAA TTAACAGGTA TACTCCAAAT TGGATATTCG TCATAAATAT TATTAATAAC	2640
CAAAGAGTCT GCAATATTTT CTACTTCATT ATGCAGAATA GTAACATAAC TTTCATTTGG	2700
GAGTTTTTTT CTATTAGATA AGTTTAATTT ATATCCTTTT TTTGCTGAT CAAAGCTTGG	2760
AAAATAAATT TCAATGATAT CAAGTTGCTT TTCTAAATTT TCCAAATTAT TATTAGGTAA	2820



1193

ATATTTTCATA AAATAGTCAT ATCCAGAAAA TTGATGTAGG GAAATAAAAT GATTTCCTAAA	2880
ATCATCGTAG ATTTTCATTGA TATTTGTATC TGTATAAAAA ATCGGAATAT CTAATAACCT	2940
CATTGTGTTCA CATTGCTTGG CTACAATACC TTGATTAGAA AACTTATTGC TCCAGAGATT	3000
TTCCAATGCT TTTTCTCTAT CTAACATTTT TCATAAAAA TCAGGATGAT ATAAAAAGA	3060
TAGTACTGAA GCATAGCTAT TTGTGTCTCT AAAAAGTACC CTTGTCTTTA AACCATACAA	3120
GTTTGCTTTT AATAGCATTT TAAATTCTTC TGTTTTATTT AACTCTTCAA ATATCAGATA	3180
AAAATCCCTA AAACCTTTTT TGAAATCTTT TATATACTTA TCAAATCTA TATCACCATC	3240
CCGAACAGGC AGGTTTTTCC CACCTTCAA ATCAATTTTC CCAATATCAA ACTTTACCTT	3300
ATCAGTATTT AAATTAATTA AAACCTTGACC AGGGATCCTC TA	3342

(2) INFORMATION FOR SEQ ID NO: 207:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3454 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 207:

GAGAAAAGAA TGTTAAAGAA AAATGATATT GTAGAAGTTG AAATTGTTGA TTTGACCCAT	60
GAAGGGGCAG GAGTTGCCAA GGTAGATGGT TTGGTCTTTT TTGTAGAGAA TGCTTTACCG	120
AGTGAAAAAA TTCTCATGCG TGTCCTCAAG GTCAATAAAA AGATTGGCTT TGGAAAAGTT	180
GAAAAATACC TTGTCCAGTC ACCACACCGT AATCAAGATC TAGATTGGCC TTACCTGCGT	240
TCAGGAATCG CGGATTTAGG ACACCTTTCT TATCCAGAAC AGCTCAAGTT TAAACCAAG	300
CAAGTCAAGG ACAGTCTCTA CAAGATTGCT GGAATTGCAG ATGTAGAAGT TGCTGAAACG	360
CTTGGTATGG AACATCCAGT CAAGTATCGC AATAAGGCGC AGGTGCCCGT TCGTCGAGTG	420
AATGGTGTCT TGGAAACAGG ATTTTCCCGT AAGAATTCCG ATAACCTCAT GCCCCTTGAA	480
GATTTCTTTA TCCAGGATCC TGTCATTGAC CAAGTCGTAG TAGCTCTTCG AGACCTGCTC	540
CGTCGTTTTG ATTTAAAACC TTATGACGAA AAGGAACAGT CTGGATTGAT TCGGAATCTT	600
GTGGTGCGTC GTGGTCACTA TTCAGGACAA ATCATGGTCG TTTTGGTGAC AACTCGTCCA	660
AAAGTTTTTC GTGTTGACCA ATTGATTGAA CAAGTTATCA AGCAGTTCCC AGAGATTGTG	720
TCTGTCATGC AAAATATCAA CGACCAGAAT ACCAATGCCA TTTTGGTAA GGAGTGGCGC	780
ACTCTTTATG GTCAAGACTA TATTACGGAC CAGATGTTGG GAAATGACTT CCAAATCGCT	840

1194

GGCCCAGCCT TTTACCAAGT CAATACTGAA ATGGCCGAGA AACTCTATCA AACAGCCATT	900
GACTTTGCAG AGTTAAAAAA AGATGATGTG ATTATTGATG CCTATTCTGG TATTGGAACC	960
ATTGGTTTAT CAGTCGCCAA GCATGTCAAA GAAGTCTACG GTGTTGAACT GATTCCAGAA	1020
GCAGTAGAGA ATAGCCAGAA GAATGCTTCT TTGAACAAGA TTAATAATGC CCACTATGTC	1080
TGTGACACGG CTGAAAATGC CATGAAGAAA TGGCTCAAGG AAGGTATTCA ACCAACCGTT	1140
ATCTTGGTTG ATCCTCCACG CAAGGGCTTG ACAGAAAGCT TTATCAAAGC AAGCGCCCAA	1200
ACAGGAGCCG ATCGCATCGC CTATATCTCC TGCAATGTCG CAACCATGGC GCGTGATATT	1260
AAACTATACC AAGAGTTGGG ATATGAATYG AAGAAAGTCC AGCCGGTGGA TCTATTTCTT	1320
CAAACGCATC ACGTCGAGAC GGTAGCACTT TTGTCCAAAC TCGATGTCGA TAAGCACATA	1380
ACTGTTGAAA TTGAGCTGGA TGAGATGGAT TTGACAAGTG CGGAGAGCAA AGCAACATAT	1440
GCTCAAATCA AAGAATATGT TTGGAATAAA TTTGAATTAA AAGTTTCGAC ATTATATATT	1500
GCACAGATAA AAAAGAAATG TGGAAATAGAA TTACGAGAAC ATTACAACAA GTCTAAAAAG	1560
GATAAACAAA TTATTCCACA GTGTACACCT GAAAAAGAAG AAGCCATCAT GGATGCTTTG	1620
AGACACTTCA AAATGATTTA ATAGAAAAGA ATGACAGTAT ATGACTTTCT GCATTTATTA	1680
CATTCCTACT TGGTATAGGA ACAGCTATTA TTCCTTTCTT GCAAGGTATC AATTAGAAAA	1740
TAGGCTCAAT ATAAAGATTG ATAGGATCAT TTTTATATTT AAAGGAGCGT TGAAATGATT	1800
GATAAAGGCA ACAAAAAATT TTAGGATAAA TTTGCTAAGT TGTATGCCTC TTTTATGAAA	1860
AAAGATAAAG AGGTTTATGA TAAAGTTTGT GAATATCTTA GTCCTCATTT GAATAAAGAT	1920
ATGGAGGTGC TTGAACTTGC TTGTTGGTTT CGTGTCTATA CAGTTATAGA GGCAAATAGT	1980
TATGTAAATA TAAGGAGTTC AAGACTTCTA CCAAAGTTTA AAACCTCAAAA AATAAATAGT	2040
TGGTGTGCTG CTTACAATAT CCATTTTAAT AATGGATATT GTAAGCAGCA CCCCCATGAA	2100
TTTAAAGATT CTTTAAAGAG TCTTATTTTG TGATGAAAAA TTAATATGTA AATCTCAGAC	2160
GATAGAAATT AAAAATCTA TCGTCTTTTT TATACTCAA AATTAGGAGGT AAAAATGGTA	2220
AGGATAAGAG GTCCCACTTA AAACAATTTA TGGCAAAATA AGGACGGAAT AACACAACAA	2280
ATTCTCTAAA ACAAATCACT AAATCAATGT AAGATTGAAT GAAATCAATA TTTATGCTAT	2340
AATTAAATAA ATTTAATGAA GAAAAAAGA GGGATATTAT GGCACCTAAC TATAAACCAT	2400
TATGGATACA GTTAGCAAAA AAAGGACTAA AGAAAACAGA TGTAATAGCT ATGGCAGGAC	2460
TTACAACAAA TGTTATGGCA CAAATGGGAA AGGATAAACC AATTACATTT AAGAATTAG	2520
AAAGAATATG TAAGGCTTTA TCTTGCACTC CTAATGATAT TATTAGTTTT GAAGATAATT	2580
TTAGTGACGA GGAATAGAAA ATGACTTTAA GGACAGAAGA TCAAGTTAGG GATTATGCAA	2640

1195

GAGAAGTATA GGCTTTAATG AAGTTGAAGA AAACATCAAT CAAGGTACTG GTCAAATAAC	2700
TACTTTTAAAT CAATTAGGCT TCAAGGGATA TTCAAATAAG CCAGATGGTT GGTATTTACC	2760
TAAAAATATG AATGATGTAG CAATAATCCT TGAAACAAAA TCAGAAGAAA GAGATATTAG	2820
CAAACAAATT TTTATTGATG AGTTAATGAA AAATATAGAC ATAATTTAAC TAAAAATAAA	2880
AACTAGATCC TTTTTTGAAA AAATTATATT ATTAAATTG TAACTGTATC TATTGACAAT	2940
GATAATTATT ATCGATACAA TAGACTTGAA ATATGTTTAA GGAGTTTTTA TGAAAACAAA	3000
TTTTTCTAA TmGCTATTTT AGCTATGTGT ATAGTTTTTA GCGCTTGTTT TTCTAATTCT	3060
GTTAAAAATG AAGAAAATAC TTCTAAAGAG CATGCGCCTG ATAAAATAGT TTTAGATCAT	3120
GCTTTCGGTC AAATATATT AGATAAAAAA CCTGAAAGAG TTGCAACTAT TGCTTGGGGA	3180
AATCATGATG TAGCATTAGC TTTAGGAATA GTTCTGTTG GATTTTCAA AGCAAATTAC	3240
GGTGTAAGTG CTGATAAAGG AGTTTTACCA TGGACAGAAG AAAAAATCAA AGAACTAAAT	3300
GGTAAAGCTA ACCTATTTGA CGATTGGAT GGACTTAACT TTGAAGCAAT ATCAAATTCT	3360
AAACCAGATG TTATCTTAGC AGGTTATTCT GGTATAACTA AAGAAGATTA TGACACTCTA	3420
TCAAAAATTG CTCCTGTAGC AGCATACAAA TCTG	3454

(2) INFORMATION FOR SEQ ID NO: 208:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 3752 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 208:

CGGGAGTATA CTTAATATAA TTATAGTCTA AAAATGACTA TCAGAAAAGA GGTAAATTTA	60
GATGAATAAG AAAAAATGA TTTTAACAAG TCTAGCCAGC GTCGCTATCT TAGGGGCTGG	120
TTTGTTACG TCTCAGCCTA CTTTGTGAAG AGCAGAAGAA TCTCCAAG TTGTCGAAAA	180
ATCTTCATTA GAGAAGAAAT ATGAGGAAGC AAAAGCAAAA GCTGATACTG CCAAGAAAGA	240
TTACGAAACG GCTAAAAGA AAGCAGAAGA CGCTCAGAAA AAGTATGAAG ATGATCAGAA	300
GAGAACTGAG GAGAAAGCTC GAAAAGAAGC AGAAGCATCT CAAAATTGA ATGATGTGGC	360
GCTTGTGTT CAAAATGCAT ATAAAGAGTA CCGAGAAGTT CAAAATCAAC GTAGTAAATA	420
TAAATCTGAC GCTGAATATC AGAAAAAATT AACAGAGGTC GACTCTAAAA TAGAGAAGGC	480
TAGGAAAGAG CAACAGGACT TGCAAAATAA ATTTAATGAA GTAAGAGCAG TTGTAGTTCC	540

1196

TGAACCAAAT GCGTTGGCTG AGACTAAGAA AAAAGCAGAA GAAGCTAAAG CAGAAGAAAA	600
AGTAGCTAAG AGAAAATATG ATTATGCAAC TCTAAAGGTA GCACTAGCGA AGAAAGAAGT	660
AGAGGCTAAG GAACTTGAAA TTGAAAACT TCAATATGAA ATTTCTACTT TGGAACAAGA	720
AGTTGCTACT GCTCAACATC AAGTAGATAA TTTGAAAAAA CTTCTTGCTG GTGCGGATCC	780
TGATGATGGC ACAGAAGTTA TAGAAGCTAA ATTAAAAAAA GGAAGAAGCTG AGCTAAACGC	840
TAAACAAGCT GAGTTAGCAA AAAAACAAAC AGAACTTGAA AAACCTCTTG ACAGCCTTGA	900
TCCTGAAGGT AAGACTCAGG ATGAATTAGA TAAAGAAGCA GAAGAAGCTG AGTTGGATAA	960
AAAAGCTGAT GAACTTCAAA ATAAAGTTGC TGATTTAGAA AAAGAAATTA GTAACCTTGA	1020
AATATTACTT GGAGGGGCTG ATCCTGAAGA TGATACTGCT CTTCTTCAAA ATAAATTAGC	1080
TGCTAAAAAA GCTGAGTTAG CAAAAAACA AACAGAACTT GAAAACTTC TTGACAGCCT	1140
TGATCCTGAA GGTAAGACTC AGGATGAATT AGATAAAGAA GCAGAAGAAG CTGAGTTGGA	1200
TAAAAAAGCT GATGAACTTC AAAATAAAGT TGCTGATTTA GAAAAAGAAA TTAGTAACCT	1260
TGAAATATTA CTTGGAGGGG CTGATTCTGA AGATGATACT GCTGCTCTTC AAAATAAAT	1320
AGCTACTAAA AAAGCTGAAT TGGAAAAAC TCAAAAAGAA TTAGATGCAG CTCTTAATGA	1380
GTTAGGCCCT GATGGAGATG AAGAAGAAAC TCCAGCGCCG GCTCCTCAAC CAGAGCAACC	1440
AGCTCCTGCA CCAAAACCAG AGCAACCAGC TCCAGCTCCA AAACCAGAGC AACCAGCTCC	1500
TGCACCAAAA CCAGAGCAAC CAGCTCCAGC TCCAAAACCA GAGCAACCAG CTCCAGCTCC	1560
AAAACCAGAG CAACCAGCTA AGCCGGAGAA ACCAGCTGAA GAGCCTACTC AACCAGAAAA	1620
ACCAGCCACT CCAAAAACAG GCTGGAAACA AGAAAACGGT ATGTGGTATT TCTACAATAC	1680
TGATGGTTCA ATGGCAATAG GTTGGCTCCA AAACAACGGT TCATGGTACT ACCTAAACGC	1740
TAACGGCGCT ATGGCAACAG GTTGGGTGAA AGATGGAGAT ACCTGGTACT ATCTTGAAGC	1800
ATCAGGTGCT ATGAAAGCAA GCCAATGGTT CAAAGTATCA GATAAATGGT ACTATGTCAA	1860
CAGCAATGGC GCTATGGCGA CAGGCTGGCT CCAATACAAT GGCTCATGGT ACTACCTCAA	1920
CGCTAATGGT GATATGGCGA CAGGATGGCT CCAATACAAC GGTTCATGGT ATTACCTCAA	1980
CGCTAATGGT GATATGGCGA CAGGATGGCT TAAAGTCAAC GGTTCATGGT ACTACCTAAA	2040
CGCTAACGGT GCTATGGCTA CAGGTTGGGC TAAAGTCAAC GGTTCATGGT ACTACCTAAA	2100
CGCTAACGGT TCAATGGCAA CAGGTTGGGT GAAAGATGGA GATACCTGGT ACTATCTTGA	2160
AGCATCAGGT GCTATGAAAG CAAGCCAATG GTTCAAAGTA TCAGATAAAT GGTACTATGT	2220
CAATGGCTTA GGTGCCCTTG CAGTCAACAC AACTGTAGAT GGCTATAAAG TCAATGCCAA	2280
TGGTGAATGG GTTTAAGCCG ATTAATTAAT ATCATGTAA GAACATTGA CATTTTAATT	2340

1197

TTGAAACAAA GATAAGGTTT GATTGAATAG ATTTATGTTT GTATTCTTTA GGTACCTATC	2400
TTATGATTTT AGGAAATGTC ATTAAAAAAA CGACTCATTT TCTCTAACCT GAAAAATAGA	2460
TTAGAGAAAA TGGGTTGTTT TATCTATTAT AGTTATTTGA ATGAAGmTAA GAAGAAGGTA	2520
TACTCACATC ATTCACATAA TCTGTATATT GACTATAAGT TTAAAAAAC AATTTTAAAG	2580
CTCTTCCTTG TCTTCTCTAA CCAAGCGTGT TATAATGAAT ACTGCTCAAG CGACCTTCAA	2640
TCGTGAAGCA CACACGACCT TCAATCGTGA ATAAACGAAT AGATGGGAGA CTTACCATGA	2700
GTGATAACTC TAAACACGT GTTGTCTGGG GGATGACTGG TGGTGTGAT TCGTCGGTGA	2760
CGGCTCTTTT GCTCAAGGAG CAGGGCTACG ATGTGATCGG TATCTTCATG AAGAACTGGG	2820
ATGACACAGA TGAAAACGGC GTCTGTACGG CGACCGAAGA TTACAAGGAT GTGGTTGCGG	2880
TGGCAGACCA GATTGGCATT CCCTACTACT CTGTCAATTT TGAAAAAGAG TACTGGGACC	2940
GCGTTTTTGA GTATTTCTTA GCGGAATACC GTGCAGGGCG CACGCCAAAT CCGGACGTTA	3000
TGTGCAACAA GGAAATCAAG TTCAAGGCCT TTTTGGACTA TGCCATAACC TTGGGGGCAG	3060
ACTATGTAGC GACTGGGCAT TATGCTCGAG TGGCGCGTGA TGAGGATGGT ACCGTTTACA	3120
TGCTTCGTGG CGTGGACAAT GGCAAGGATC AGACCTATTT CCTCAGCCAA CTTTCGCAAG	3180
AACAACTTCA AAAAACCATG TTCCCACTAG GACATTTGGA AAAGCCTGAA GTACGCAGAC	3240
TAGCAGAAGA AGCAGGCCTT TCGACTGCTA AGAAGAAAGA CTCGACAGGG ATTTGCTTTA	3300
TCCGAGAAAA GAACTTTAAA AACTTTCTCA GCAACTACCT GCCAGCTCAG CCTGGTCGCA	3360
TGATGACTGT GGATGGTCGC GATATGGGCG AGCATGCAGG TCTTATGTAC TATACAATCG	3420
GTGACGCTGG CGGACTCGGT ATCGGTGGGC AACACGGCGG TGACAATGCC CCTTGGTTCG	3480
TTGTCCGAAA AGATCTAAGC AAGAATATTC TCTATGTAGG ACAAGGATTC TACCATGATT	3540
CGCTCATGTC AACTAGCCTA GAAGCCAGTC AAGTCCACTT TACTCGTGAA ATGCCAGAAG	3600
AGTTTACGCT AGAATGTACG GCTAAATCC GTTACCGTCA GCCTGACTCT AAGGTGACCG	3660
TTCATGTCAA AGGAGAAAAG ACAGAGGTCA TCTTTGCCGA ACCACAACGC GCGATTACAC	3720
CAGGACAGGC AGTTGTCTTT TACGATGGCG GG	3752

(2) INFORMATION FOR SEQ ID NO: 209:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 3580 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

1198

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 209:

TATTTATATT TTTTATCTC TGGCATACTT TGATACCTTT TTAGACTTAA AGTCTTTAAT	60
AGTGCCTTTC CACCTCTTTT TATCTATAAA GATTCTCCTA CATCATAATT CATTTTMTTA	120
TTTAAACCTT TCTGTCTTAG TTTGTCTTTA TCTTCTTCAT ACCATTTTAA GATTGTCACA	180
TAGTGGTTTT GATAGGTCTT ACCACTGCTT TCCATGTATC TGGATAGTTT ATTTATCATT	240
ATATCTGTGT GTGAGTTTAA TTTTCTTTT AGATTTTAT ATTCTTCTTT GCTTAACCTT	300
ACATTTTGA ATTCTCCATA AAAAATGGGG GTGGACTTTT TATCTATCTC TCCCTCTCTC	360
TCTTTATCTA TCTCTATATC TTTCCATGTA ATTCCAATCT GGAGTACCTC TACTGTCTAT	420
CGGTAATTTA ATTTTGATAT CTGGCAATAC TGTGCTAGAT ATTTGATCTT TATATTCAGT	480
ATTTTTTAAA GCTTGCCTAA TAATTGAAGT TAAATAGAAT GCTACTTCTT TATTCAATTC	540
TTTATTTTTT AATTTTAAAC AATGAATTTT CATATCTAGG CTGCTTTAT ATTTATGATA	600
AAAGACTGCT CCTAAAAATG AAACAGATAT AAAATTTTCA AAAACTCTAT AATTTTTATC	660
ATCTATATCT TCGTAGTAAC CTAAGATACC ATTGTCAATA TTTGTAGCAC TAATTCTAGG	720
AGTTTTTCCA TCGAGTAAAT ATCTTTTTTG AATAGATGAG CCTGTTGGTA CTTAACTCGA	780
TTTCCCTTTT TTTTCGGTAA TAAATATTTT TTTTATTTT GTTGTCTGAT ATTTTCTCTA	840
CCTGTCTCTT GTAGGATGAG TATTTTCTAG ATTTTCyTGA ATAACTTTTT ACTTGAAGTT	900
TTAGCTTTTG AACTAGTCGT TGTACTTTCT TTTTGTTTAT TATCAGTCCT GATCTTTTTA	960
ATATTGCTGT TATTCTCTAT ATCCTATTTT TCATTCATGA TATTCTTTTA CTAATTTTAT	1020
CTTAAATTCT GTGCTGTATT TGCCATTAAA AAAGTACCT CCTTAGTTA GTTTTTTGGC	1080
CTAACTTTTG AGGGTCAGTT CAAAATTTGC GACTTTTAAA TGAATTCCAA TATTCAATTA	1140
TTAAGAGTTA ACATGGTGCT TGCCAATAGG AATCATTAGA GGCGAATTGG AAATAGGGTC	1200
ACGTATAATT TTTGCTTCAA GATTAAAGAT ATCTTTAACT AGTTTATCAT TTAGTATATC	1260
TTCAGGCTTT CCCTCTGCAA CAAGTTTACC TTCTTTAATT GCAAATAGGT AATCAGCGTA	1320
TCTTGCTGTT AGATTTATAT CGTGCAAAAT CATGCAAAATG GTTGTCTTAT ATTTTGGTT	1380
TAGATCAGTC AAGAGGTCTA ATAGTTCTAT TTGATATGAG ATATCCAAGT AAGTAGTTGG	1440
CTCATCTAAA AGTAGGATAC TTGTATCTTG GGCTAGGGCT AGAGCTATCC ATACTCTTTG	1500
CCTTTGACCC CCAGAAAGTT CTTCAACTAG GTTATTTGCT AGATCTTCAA CATTGGCCTT	1560
AACCATTGAT CTGTTTATTA TTTCAAGGTC ATCTTTTCCA AGACTCTTAA AAGGCTTTCT	1620
GTAGGGGAAA CGACCACGGC TTACAAGATC AGCTACTGTT ATTGATTCAG GGATTATTGG	1680
AGATTGAGGT AATATAGCTA TGTGTTTTGC TAAATCTTTT TCTTTATAAG AATTAATTGA	1740

1199

TTTATTATCA AGCAATACTT CTCCCTCTAA TGGCTTTATA AGTCGAGACA AGGTTTTAAT	1800
GAGTGTTGAT TTCCCACAAC CATTTGACCC AATAATAACT GATATTTTTT CTTCAGGTAT	1860
TTTTATATTT ATATTTTCCA AGATTATTTT TTCATCATAA CCGCAGGTAA GATTATTTGA	1920
CCACAGACCT TTCATTATAT ATTCCTCCTG TTCATTTTTA TTAGTAAGTA TATTAAGTAT	1980
GGTGAACCTA ACAAGCCAGT TACAACACCT ACTGGATATC TAGCTGGTAA AATATTTTGA	2040
GAGAATATGT CTGATAACAA AACTAGTAAA ATTCCAACCA ATCCAGCTAA TATTGGGCTT	2100
CTTTTCTTGC CAATATTTAA GGCTATGGGA CCAGCTAAAA AAGATATACA AGCTATTGGT	2160
CCTGTAATTG AAGTAGAAAA AGCAGTAAAA GATACAGCGC AAAAAATTAA AACAAGCCTT	2220
GAAAGCTCGG GATTTGCTCC AAGTCCGATT GCTATTTCTT CACCAAGTTC AATAATTCT	2280
AGTCTTTTAT TAAAAAATAA AACTAATATA GTAGCAATAA TACTTACTAT TAGAACAAGA	2340
GGTATGTCAT CTAACTTTGT AAAAGATAAA GAGCCACTGA GCCATCTCAT AACTTCTTGT	2400
AATTCATATC TTGCTACTTT CAACAATAAA AATGAGGTGC CTGCTCTTGT GACAGCTTGA	2460
AAACCAATAC CTAATATTAT CAGTCTTGCT GCTGAAAAAC CATCTTTTTT AGCTAGTAAA	2520
AATAATATTA AAGATGATGT TAGTCCACAA GTTATTGAAA TAATTCCAGT AGTTAAACTA	2580
TTTGTTTTTA ATACCAATAT GCAAAAGACC GCTGCAATAG ATGAAGAACT TGTGACACCG	2640
ATTATATCAG GACTTGCAAG AGGATTCTT AACATAGTTT GAAAGATAAA TCCTGCCAAT	2700
CCAAAAGACC AGCCAGCTAT AATTCCTGCT AATAATTTTG GTAATCTAAT TTCCATAATC	2760
GAAAACTAG CTCCAGGAAC AGTTTCACTA TTTAAGACTT TAATCAAAGT TGAAAAAGAA	2820
TAACTTTCAT CTCCGATAAG TAAAATGAAA AATGATAGAC TGATTATTAT TAATAAAAAT	2880
AGTGAGGAAA ATAGTGTTAT TCTATTTTTT CTTTTTTGAA TACCTATAAT TAAATTTTGC	2940
ATTAGTTATT AACCCCTCTA TTTTTCATAG TTACATAAAT AAGTACTGGA CCCCCGATTA	3000
TTGCAGTAAT TATCCCTACT TCAATTCAC CTGGTTTACC TAACATACGG CCGATTATAT	3060
CACATATAAG CAAGAGCTCT GCACCTATAA AAGATGAAGA AATGGTCATT GTGCGTATAT	3120
CTTTGCTTAT AAATAAGCCA CAAAAGTGAG GAACTATAAG ACCTACGAAG CCAATAGGTC	3180
CACCAATTGC AGTAATACTT GAACATAAAA GCACACTTGC AATTATTGCA AGTGATCTTA	3240
TCCTATTAAC ATTAACCTCA AGACCAACAG CCATTTTCATC ACCCATAGCT AAAGCGTTTA	3300
AATCTGATGA AATAAATATA GCTATCAAGT GACCTAAAAT TATAAAAGGT AGTAGTGTAG	3360
ATATAGAAGA TAATGTAGCT GCTCCAAGGC TACCTATTTG CCAAAATCTA AATTTGTCTA	3420
AGACGTTATT ATTCGGTAAA ATTAAAAAAC TTACAAAACCT GCTTAAAGCC ATACTAACAC	3480

1200  
AAGTTCCTGA TAAGGCAAGT TTTATAGGGG TAAGGCCTGC TTTCCGTTA CAGCAATCGC 3540  
GTATACAAAA ATTGCACTTA CTAAGCCACC AATGATTGCG 3580

## (2) INFORMATION FOR SEQ ID NO: 210:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 11378 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 210:

CCAAATTGCT CCACAATTAT TATGGAGTCG TCGTTTGGCA GATGGGCGTG ATATGTGTGC 60  
TCAAGAATGG TTGACAGGCA AGATATTGAC CCCCTATGAT ATGAATCGTA AGCAAATCGT 120  
CAATATTTTA ACCCGTCTTC ATCGCTCAGC TCCGTTGATG ACACAATTGA GTCGTTTGGG 180  
CTATGCCATG GAAACACCTG TAGATTTACT ACAGTCTTGG CAGGAAACGG CTCCAGATGC 240  
TTTGGCTAAA AATCATTTTA TCAGTGAAGT GATGGCTGAT TTACGTCAGA CTATTCCAGG 300  
ATTTAGAGAG GACCATGCGA CCATTGTCCA TGGAGATGTA CGACATAGTA ATTGGATTGA 360  
GACAGATAGT GGCTTGATTT ATTTAGTAGA TTGGGATTCG GTTCGCTTGA CCGATCGCAT 420  
GTTTGATGTG GCCCATATGC TCTGCCATTA TATTTACAGAA CATCAGTGGG AGGAATGGTT 480  
GACCTACTAC GGTTACAAGT ACAATCAAAC GGTATTAAGT AAATTGTATT GGTATGGTCA 540  
ATTGCTCTTAT TTGAGTCAGA TTTCCAAGTA TTATATGAAC CAAGATTTAG AAAATGTCAA 600  
TCGGGAGATT CATGGTTTGC GTCATTTCCG AGACAAGTAT GGAAAGAGAA GATGAGAGTT 660  
AGAAATCGTA AAGGGGCAAC AGAATTACTA GAGGCAAATC CCCAGTATGT GGTCTCTAAT 720  
CCCTTGGAAG CCAAGGCAAA ATGGCGGGAC TTGTTTGGCA ATGATAATCC CATTCATGTG 780  
GAAGTTGGAA GTGGAAGGGG TGCCTTTGTT TCAGGTATGG CCAAGCAAAA CCCTGACATC 840  
AACTATATCG GGATTGATAT TCAAAAGTCT GTTTTGAGCT ACGCTTTGGA CAAGGTGCTT 900  
GAAGTTGGAG TGCCTAACAT CAAGCTCTTG TGGTAGATG GTTCTGACTT AACTGACTAC 960  
TTTGAAGACG GTGAGATTGA TCGCTTGAT CTGAACTTTT CAGATCCATG GCCGAAAAAA 1020  
CGCCATGAAA AGCGTCGTTT GACCTACAAG ACCTTCTTGG ATACCTTCAA ACGTATCTTG 1080  
CCTGAAAATG GAGAAATTCA TTTCAAGACG GATAACCGTG GCTTGTTTGA GTACAGTTTA 1140  
GTGAGCTTTT CTCAATATGG CATGAAATC AATGGTGTCT GGTAGATTT GCATGCCAGT 1200  
GATTTTGAAG GCAATGTCAT GACAGAATAC GAGCAAAAAT TCTCAAACAA GGGGCAAGTT 1260  
ATCTACCGAG TTGAGGCAGA ATTTTAAGAG ATAACTAAA ATTAGGCTGT ACAAGTGCTT 1320



1201

TTGCTTTACA TAAGTTGGCA AACGTGCTAT ACTGATAGTA AGAATATGAA AAGTGAGGCG	1380
GGGAAATATC TTCGCCTCTT GCTTATGAGG AGGTGGACGC AATCGCAACA ATCGTAGAAT	1440
TAGTCAGAGA AGTTGTAGAA CCTGTCATAG AAGCTCCTTT TGAAC TCGTG GATATCGAGT	1500
ATGGAAAGAT TGGCAGTGAC ATGATTCTCA GTATTTTGT AGATAAACCC GAAGAATTAC	1560
CTTGAACGAC ACGGCAGACT TGACAGAAAT TATCAGTCCT GTCCTAGACA CCATCAAGCC	1620
AGATCCCTTC-CCAGAACAAT ATTTCTAGA AATTACCAGT CCAGGTTTGG AACGTCCTTT	1680
GAAAACCAAG GATGCCGTCG CTGGAGCGGT TGGAAAATAC ATCCATGTCG GGCTCTACCA	1740
AGCCATCGAT AAGCAAAAGG TCTTTGAAGG AACCTTGTG GCCTTCGAAG AGGACGAGTT	1800
GA CTATGGAA TATATGGACA AGACGCGTAA GAAAACCGTC CAAATCCAT ACAGTTTAGT	1860
ATCAAAAGCA CGTTTAGCAG TTAATTATA GAAAAGAAA GGATAGCTTT TGAGGATTCA	1920
AAAGTGAAGA AAACATGACT AAAGAAATGC TAGAGGCCTT CCGCATTTTG GAAGAAGACA	1980
AGGGAATCAA AAAAGAAGAT ATCATCGACG CAGTAGTAGA GTCGCTTCGT TCCGCTTATC	2040
GCAGACGCTA TGGTCAGTCA GACAGCGTAG CTATTGACTT CAACGAAAAA ACAGGTGACT	2100
TTACAGTTTA TACTGTCCGT GAAGTTGTTG ATGAAGTATT TGATAGCCGT TTGGAATCA	2160
GCTTGAAAGA TGCTCTTGCC ATTAATTGAG CTTATGAACT TGGAGACAAA ATCAAGTTTG	2220
AAGAAGCACC AGCTGAGTTT GGTGCTGTAG CAGCCCAATC TGCCAAACAA ACCATCATGG	2280
AAAAATGCG CAAGCAAACA CGTGCCATCA CTTACAATAC TTACAAAGAA CATGAGCAAG	2340
AAATCATGTC TGGTACAGTA GAACGCTTTG ACAACCGCTT TATCTATGTC AACCTTGGTA	2400
GCATCGAAGC CCAATTGTCA AAACAAGACC AAATTCCTGG AGAAGTTTTT GCTTCTCATG	2460
ATCGTATCGA AGTTTATGTT TACAAGGTTG AAGACAACCC TCGTGGTGTG AACGTCCTTG	2520
TTAGCCGTAG TCATCCAGAA ATGATCAAAC GTTTAATGGA GCAAGAAATT CCAGAAGTTT	2580
ATGATGGAAC TGTGAAATC ATGAGCGTGG CTCGTGAAGC AGGTGACCGT ACGAAGGTTG	2640
CTGTTCTGAG CCACAATCCA AACGTGGATG CTATCGGTAC AATCGTTGGA CGTGGTGGTG	2700
CTAATATCAA GAAGATTACT AGCAAATTCC ACCCAGCTCG TTACGATGCT AAAAAAGACC	2760
GCATGGTACC AATCGAAGAA AATATCGATG TTATCGAGTG GGTAGCAGAT CCAGCTGAAT	2820
TTATCTACAA TGCCATCGCT CCTGCTGAGG TTGACCAAGT TATCTTTGAT GAAAACGACA	2880
GCAAACGTGC CTTGGTGGTT GTTCCAGATA ACAAGCTTTC TCTTGCCATT GGTGCTCGTG	2940
GACAAAACGT GCGCTTGGCG GCTCACTTGA CTGOTTACCG TATCGATATC AAGTCTGCTA	3000
GCGAATTTGA AGCCATGGAA GACGCTGCTT CAGTAGAGTT GGAAGTAGAA AACGATACTG	3060

1202

TAGAAGAATA	AAAGCTGCTA	GAGGAGGGAA	AGATGAAAAC	AAGAAAAATC	CCTTTGCGCA	3120
AGTCTGTTGT	GTCTAACGAA	GTGATTGATA	AGCGTGATTT	GCTCCGCATT	GTCAAGAACA	3180
AGGAAGGACA	AGTCTTTATT	GATcCTACGG	GCAAGGCCAA	TGGCCGCGGC	GCTTATATCA	3240
AACTAGACAA	TGCAGAAGCC	CTAGAGGCCA	AAAAGAAGAA	GGTCTTTAAC	CGCAGCTTTA	3300
GCATGGAAGT	GGAAGAAAGC	TTTTATGACG	AGTTGATCGC	TTATGTGGAT	CACAAAGTGA	3360
AAAGAAGAGA	GTTGGGACTT	GAATAAGCAA	AAGATAAGTA	ATCTCTTGGG	GCTTGCTCAG	3420
CGAGCAGGGC	GCATCATATC	GGGTGAAGAA	TTGGTGGTCA	AGGCCATTCA	AGACGGCAAG	3480
GCCAAGTTGG	TCTTTCTAGC	TCATGATGCT	GGACCCCAATC	TGACCAAGAA	GATTCAAGAT	3540
AAAAGTCATT	ATTATCAAGT	AGAAATTGTA	ACCGTGTTTT	CAACACTGGA	ATTAAGCATA	3600
GCAGTCGGGA	AATCGAGAAA	GGTTTTGGCT	GTAACAGATG	CTGGATTTAC	AAAGAAAATG	3660
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CGCAAAAGAA	CTTGGAAAAG	AAAGTAAAGA	AGTTGTAGCG	CGTGCAAAAG	AGTTGGGCTT	3780
GGATGTGAAA	AGCCACTCAT	CAAGTGTTGA	AGAAGCTGTC	GCTGCAAAAA	TTGCTGCCAG	3840
CTTTAAGCCT	GCAGCTGCTC	CGAAAGTAGA	AGCAAAACCT	GCAGCCCCAA	AAGTAAGTGC	3900
AGAAAAGAAA	GCCGAAAAAT	CTGAGCCAGC	TAAACCAGCT	GTAGCTAAGG	AAGAGGCAAA	3960
ACCTGCAGCC	CCAAAAGCAA	GTGCAGAAAA	GAAAGCCGAA	AAGTCTGAAC	CAGTAAAACC	4020
AGCTGTAGCC	AAGGAAGAGG	CAAAACCAGC	TGAGCCAGTC	ACTCCGAAAA	CAGAAAAAGT	4080
AGCGGCTAAA	CCGCAAAGTC	GTAATTTCAA	GGCTGAGCGT	GAAGCACGTG	CTAAAGAGCA	4140
GGCAGAGCGA	CGCAAGCAAA	ATAAGGGCAA	TAACCGTGAC	CAACAACAAA	ACGGAAACCG	4200
TCAGAAAAAC	GACGGCCGTA	ATGGTGGAAA	ACAAGGTCAA	AGCAACCGCG	ACAATCGTCG	4260
CTTTAATGAC	CAAGCTAAGA	AGCAGCAAGG	TCAGCAAAAA	CGTAGAAATG	AGCGCCGTCA	4320
GCAAGAGGAT	AAACGTTCAA	ATCAAGCGGC	TCCACGTATT	GACTTTAAAG	CCCGTGCAGC	4380
AGCCCTAAAA	GCAGAGCAAA	ATGCAGAGTA	CGCTCGTTCA	AGTGAGGAAC	GCTTCAAGCA	4440
GTATCAGGCT	GCTAAAGAAG	CCTTGGCTCA	AGTAACAAA	CGCAAGGAAC	CAGAGGAAAT	4500
CTTTGAAGAA	GCGGCTAAGT	TAGCTGAACA	AGCACAGCAA	GTTCAAGCAG	TGGTTGAAGT	4560
CGTCCCTGAG	AAAAAAGAAC	CTGCAGTGA	TACACGTCGT	AAAAACAAG	CTCGACCAGA	4620
CAAAAATCGT	GACGATTATG	ATCATGAAGA	AGATGGTCCT	AGAAAACAAC	AAAAGAATCG	4680
AAGTAGTCAA	AATCAAGTGA	GAAATCAAAA	GAATAGTAAC	TGGAATAACA	ACAAAAAGAA	4740
CAAAAAGGC	AATAACAAGA	ACAACCGTAA	TCAGACTCCA	AAACCTGTTA	CGGAGCGTAA	4800
ATTCCATGAA	TTGCCAACAG	AATTTGAATA	TACAGATGGT	ATGACCGTTG	CGGAAATCGC	4860

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AAAACGTATC AAACGTGAAC CAGCTGAAAT TGTTAAGAAA CTTTTCATGA TGGGTGTCAT	4920
GGCCACACAA AACCAATCCT TGGATGGGGA AACAAATTGAA CTCCTCATGG TGGATTACGG	4980
TATCGAAGCC AAACAAAAGG TTGAAGTGGA TAATGCTGAC ATCGAACGTT TCTTTGTCGA	5040
AGATGGTTAT CTCAATGAAG ATGAATTGGT TGAGCGTCCA CCAGTTGTTA CTATCATGGG	5100
ACACGTTGAC CACGGTAAAA CAACCCTTTT GGATACTCTT CGTAACTCAC GTGTTGCGAC	5160
AGGTGAAGCA GGTGGTATTA CTCAGCATAT CGGTGCCTAC CAAATCGTGG AAAATGGTAA	5220
GAAGATTACC TTCCTTGATA CACCAGGACA CGCGGCCTTT ACATCAATGC GTGCGCGTGG	5280
TGCTTCTGTT ACCGATATTA CGATCTTGGT CGTAGCGGCA GATGACGGGG TTATGCCTCA	5340
GACTATTGAA GCCATCAACC ACTCAAAAGC AGCTAACGTT CCAATCATCG TAGCTATTAA	5400
CAAGATTGAT AAACCAGGTG CTAACCCAGA ACGCGTTATC GGTGAATTGG CAGAGCATGG	5460
TGTGATGTCA ACTGCTTGGG GTGGAGATTC TGAATTTGTT GAAATTTCCG CTAAATTCAA	5520
CCAAAATATC GAAGAATTGT TGGAAACAGT CCTTCTTGTG GCTGAAATCC AAGAACTCAA	5580
AGCAGACCCA ACAGTTCGTG CGATCGGTAC GGTATCGAA GCGCGCTTGG ATAAAGGAAA	5640
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TGTCGGAAAT ACCTTCGGTC GTGTCCGTGC TATGACCAAC GACCTTGGTC GTCGTGTTAA	5760
AGTTGCTGGA CCATCAACAC CAGTCTCTAT CACAGGTTTG AACGAAGCAC CGATGGCGGG	5820
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CAAACGTGCC CTCATGAAAC AACGTCAAGC TACCCAACGT GTTAGCCTTG AAAACCTCTT	5940
TGATACCTTT AAAGCTGGGG AACTCAAATC TGTTAATGTT ATCATCAAGG CTGATGTACA	6000
AGGTTCTGTT GAAGCCCTTT CTGCCTCACT TCAAAAGATT GACGTGGAAG GTGTCAAAGT	6060
GACTATCGTC CACTCAGCGG TCGGTGCTAT CAACGAATCA GACGTGACCC TTGCCGAAGC	6120
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GGAAGAAGCT ATGAAAGGGA TGCTTGATCC AGAATTTGAA GAAAAAGTTA TTGGTGAAGC	6300
GGTTATCCGT GAAACCTTCA AGGTGTCTAA AGTGGGAACT ATCGGTGGAT TTATGGTTAT	6360
CAACGGTAAG GTTGCCCGTG ACTCTAAAGT CCGTGTTATC CGTGATGGTG TCGTTATCTA	6420
TGATGGTGAA CTCGCAAGCT TGAACACTA TAAAGACGAC GTGAAAGAAG TGACAAACGG	6480
TCGTGAAGGT GGATTGATGA TCGACGGCTA CAATGATATT AAGATGGATG ATGTGATTGA	6540
GGCGTATGTC ATGGAAGAAA TCAAGAGATA AGATTTTTTG CTCCTTTCTT AGGTGGTGAG	6600

1204

GGACGCAAGC	AAACCGATGG	TTTCATTGCT	TATTTTTGAG	CCTAGGGTCT	CAAAAATCCC	6660
CTGTGATGGG	ACTGATAAAT	CAGTTCCATC	ACTTTCACCA	CGGCGAAAGA	AGCAGATGAC	6720
TTCAAATTGA	ACTTCGTTTC	AATTTAAACT	GAAAATCAAG	AAGTTTAAAA	TAGCTAGGTC	6780
TGCTGGCCTA	GCTTTTGTTT	CAAAGTAGAG	AAAGGAATAT	CATGGCAAAT	CATTTCCGTA	6840
CAGATCGTGT	GGGCATGGAA	ATCAAGCGTG	AAGTCAATGA	GATTTTGCAA	AAGAAAGTCC	6900
GTGATCCACG	TGTCCAAGGT	GTGACCATCA	TAGATGTTCA	GATGCTGGGT	GACTTGCTCTG	6960
TTGCCAAGGT	TTATTACACC	ATTTTGAGTA	ACCTTGCTTC	GGATAACCAA	AAAGCCCAAA	7020
TGGGGCTTGA	AAAAGCAACT	GGTACCATCA	AACGTGAACT	TGGTCGCAAT	TTGAAATTGT	7080
ACAAAATCCC	AGATTTGACC	TTCGTCAAAG	ACGAGTCCAT	CGAGTATGGA	AACAAGATTG	7140
ACGAGATGCT	ACGCAATCTG	GATAAGAACT	AAAGAAGAGG	GGTTGCCCTT	CTTTTTTGTT	7200
GGAGGAAAAT	AGGTTGAATT	TGAAATGGAA	AAATATTCTT	TTATAATAGA	TTGAAACTAG	7260
AATAGTACGC	CTCTACTTCT	AAAATATTGT	TAGAAATCGA	TTTGAATGTC	CTGATCGATT	7320
TGTCCTGTTT	TTGTTTCATT	TTAATATAAA	AAAGGGATTC	TGTATTTTTT	AATGTTATCT	7380
AATTAGAAAA	TGCTTTTTTT	GTAGGAAATA	TAATATGATA	AGGTGCAAAA	AAGAAATAAG	7440
GAGTTTGTAT	ATGGCTGAAC	AAGACTTAGC	TATGCAAGTA	TTGCAACAAG	TGGTGAAACT	7500
ACCTGTTGTT	AAGGTTGATC	GTTGCAAAAT	TTTAGTGGAT	AAGTTTTCCA	AAGAATTGGA	7560
TCCAAAAGAT	ATTCTACCTT	TATTGGAACA	AGGTCCAACG	ACTCTTCTAT	CTCAAGAAAT	7620
ATTAGATCGT	GTAGCTAATG	CTTGATTTTG	GGACAATGTA	TTATTAGCGA	GTGGGACTTC	7680
TGTTTTGGCA	GGATTACCTG	GAGGGCTTGC	TATGGCAATT	ACCATTCCAG	CTGATGTGGC	7740
TCAATTTTAT	GCTTTCTCTC	TGAAATTGGC	TCAAGAATTA	GGTTATATTT	ATGGTTATGA	7800
GGATCTTTGG	GCTTCACGAG	AGGAGTTGAG	TGAAGATGCT	CAAAAATACC	TCTTGCTTTA	7860
TCTAGGCCTA	ATGTTAGGGG	TGAATGGAAC	CGCTGCTTTG	CTACGTGTTG	GTAAGTATAAC	7920
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CCCTATTTTG	AAAAAAGTCT	TAAAAATATT	TGGTGTGAAT	CTTACCAAGG	GAGGGTTGGC	8040
CAAAGGAATG	GGGAAATTTA	TTCTATCTTT	GGGTGGTATC	ATTTCAAGTG	GTTTAACCTT	8100
TGCAACTATG	AAACCAATGG	GGGAAAGCTT	GCAGAAAGAA	TTATCCAAGC	TAGTCAACTA	8160
TAGTGAAGTT	CAATATCAAG	AAGATGTTGA	AACAATCCGA	AAAGAGGCTG	AAATCATCAA	8220
AGGAGAGTAA	TATGAATCCT	ATCAAAGCTT	TTGCTAAAAT	TTATGGTAAT	TACTTTTTGA	8280
CCGTGCAAGG	TGTAAGAGTG	ATGAAAACGA	TAAAGAAAGC	TGACCATGTC	GTTGTTGGTC	8340
TGGGGAAACT	TTTTATTGCC	GACAAGTTAA	TGGATACGGC	TGGGTGGCTC	ATTAAGCCAG	8400

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AGGAGAGAGA ATGAAATTTT TTTGGTCTTC TTGCTATTCT TTTTATCAAA CCGATTATTG	8460
GGATTGTGAA ATTCTTTTGG ATGATCATCT CTTTGCAGT CCAATGCTG TTTTACAAGA	8520
TAGTGTTTAA GATATTGGAT TGGCTCTTTA AACTTATCTA GATGGTAATC CAAGTTGCAG	8580
AGAACTAGCA GGAACCTCCAC TGCTAGTTTT TTATTCTCTT TCCATATGGT ATAATATAAG	8640
CAGTAAAATC ATTTTATACT CTTGCGAAAAT CTCTTCAAAC CACGTCAGCT TCACCTTGCA	8700
GTATATATGT TACTGACTTC GTCAGTTCTA TCCACAACCT CAAAACGGTG TTTTGAGCTG	8760
ACTTCGTCAG TTCTATCTAC AACCTCAAAA CACTGTTTTG AGCAACCTGC GGCTAGCTTC	8820
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AAATCTAGT GGAGTTGGGT TTAAACCCC TTGCCAATCC CTTAATGCCG AATACAGTTG	9000
GTCGTAAAGT ATCACTTAAA CAGGGTTCTA AGCTAGCAGG AACTCCTATG GACAAGATTG	9060
TACGCACACT GGAACCGAAT GGCTACGAAG TGATTGGATT AGACTAATGA CAGATGAACG	9120
GATTCATATC CTACGGGATA TTTGTTAGA ATTGCACAA TGGCGCTCTC CTGAGTCGGT	9180
TCAAGATCGC TTTGATGCGA CCTTTACGGG CGTGTACGCC ATCGAGATTT CCCTTATGGA	9240
GCACGAGCTG ATGAACTCGG ATTCGGGCGT CACTTTTGAA GATGTTATGG AACTCTGTGA	9300
TGTCCATGCC AATCTTTTAA AAAATGCTAT CAAAGGTGTC GAAGTTTCAG ATACTGAGCA	9360
TCCAGGTCAC CCAGTTCGTG TCTTCAAAGA AGAAAATCTG GCTCTCCGTG CGGCCTTGAT	9420
TCGCATTCTG AGATTGTTAG ATACCTATGA GTCTATGGAA GACGAGGAAA TGCTGGCGGA	9480
GATGCGTAAG GGTGTTGGTC GTCAGATGGG ACTTGTGGGT CAATTTGACA TCCATTACCA	9540
ACGTAAGGAA GAACTCTTCT TTCCTATCAT GGAGCGCTAT GGACACGATT CACCTCCCAA	9600
AGTTATGTGG GGAGTGGATG ATCAGATTAG GGAACCTCTT CAAACAGCTC TAACGACAGC	9660
CAAGTCACTA CCAGAAGTGT CAATTAGCAG TGTAAGGAA GCTTTTGAAG CTTTTCGAPC	9720
AGAGTTTGAA AGTATGATTT TCAAGGAAGA GTCCATCCTC CTCATGATTC TCCTTGAGTC	9780
TTTTACTCAG GATGACTGGC TTCAGATTGC GGAGGAGAGC GATGCCTATG GCTATGCCAT	9840
CATCCGTCGG TCAGAGAAAT GGGTGCCAGA ACGACAGAGC TTTATTGAGG AAAAGATTGC	9900
AGAGGAGCCT GTACAGCTAG ATACGGCAGA AGGTCAAGTT CAACAAGTCA TAGATACGCC	9960
AGAAGGCCAT TTTACCATT A CTTTACCCC TAAGGAAAAG GAAGCTGTGC TGGACCGCCA	10020
TAGTCAACAG GCTTTTGGTA ATGGCTATCT TTCAGTCGAG CAGGCCAATC TCATCCTCAA	10080
TCATCTCCCT ATGGAGATTA CCTTTGTCAA TAAAGAAGAT ATTTTCCAGT ATTACAATGA	10140

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CAATACGCCA GCTGATGAGA TGATTTTCAA	ACGGACGCCG TCCCAAGTCG GGCGCAATGT	10200
CGAACTCTGC CATCCGCCTA AGTACTTGA	CAAGGTCAAA ACTATCATGA AGGGGCTTCG	10260
TGAGGGAAGC AAAGACAAGT ATGAAATGTG	GTTCAAGTCT GAGTCGCGAG GTAAGTTTGT	10320
CCACATCACC TATGCTGCAG TACACGATGA	AGACGGAGAA TTCCAAGGAG TGTGGAGTA	10380
TGTTCAAGGAT ATCCAGCCCT ACCGTGAGAT	TGATACGGAC TATTTTCGTG GATTAGAATA	10440
AGGAGAAAAA ATGAGTTACG AACAAGAATT	TATGAAGGAA TTTGAAGCTT GGTCAATAC	10500
CCAAATCATG ATTAACGACA TGGCGCACAA	GGAAAGCCAA AAAGTTTACG AAGAAGACCA	10560
GGACGAGCGT GCCAAAGATG CCATGATTCT	CTACGAGAGT CGCTTGGATG CTTATCAGTT	10620
CTTGCTTGGT AAGTTTGAAA ACTTCAAAGT	AGGCAAGGGA TTCCATGATT TGCCAGAAGG	10680
CTTGTTTGGT GAGCGAAATT ATTAACGAG	AAAGATTCTT GATTTTTCAC TAAAATCTTG	10740
ATAGAATGTT TATGTTAAAT CCTTGTGAGA	GCAGGGATTT TTTATTGAAA GGATTTTATC	10800
ATGTCAAAGA AACTCAATCG TAAAAACAA	TTACGAAATG GCCTCCGTCG CGCAGGTGCC	10860
TTTTCAAGTA CGGTGACTAA GGTGTAGAT	GAGACAAAAA AAGTCGTGAA GCGTGCAGAA	10920
CAGTCAGCAA GCGCAGCTGG TAAGGCTGTT	TCTAAAAAAG TTGAACAAGC AGTAGAAGCT	10980
ACCAAAGAGC AAGCTCAAAA AGTAGCTAAT	TCTGTAGAAG ATTTTGCAGC AAATTTGGGT	11040
GGACTTCCAC TTGATCGTGC CAAGACTTTC	TATGATGAAG GAATCAAGTC TGCTTCAGAT	11100
TTCAAAAACT GGAAGTAAAA AGAACTCCTT	GCCTTGAAAG GAATCGGCCC AGCTACCATC	11160
AAGAAATTGA AAGAAATGG CATCAAGTTC	AAGTAATTTT TCTTGAGCCT TGCATTTCGG	11220
AAAAAATCTT GCTACAATAG AGCCATTAGA	GGTGTMTTGA ATCCACATT TTACAGAAAG	11280
TGGCGGCGCT GAGAAGTCCA CAAATGTGTC	AAAAGTGGT GCTAATGGAT GAAAAATTGA	11340
AATAAAAGTG TCTTTTGTCT TTAAAGACGA	GAGTTGCG	11378

## (2) INFORMATION FOR SEQ ID NO: 211:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 4156 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 211:

CCGCGAGCCA CGGCGAATTT GCTGCGGGTA	TTCATCAGTC AGGATCTATG ATCTTTGGTG	60
AACAAGAAAA GGTTCAGTT GTGACCTTTA	TGCCAAATGA AGGTCCTGAT GATCTATACG	120
CTAAGTTTAA TAACGCTGTT GCTGCATTG	ACGCAGAAGA TGAGGTTCTA GTTTTGCGTG	180

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ACCTTTGGAG TGGTTCTCCA TTAAACCAAG CTAGTCGCGT GATGGGAGAA AATCCTGAGC	240
GTAAGTTTGC CATCATCACA GGACTIONACT TACCAGATGT GATTCAAGCC TACACAGAGC	300
GCCTCATGGA CGCTGCTGCA GGTGTAGAAA AAGTCGCTGC TAATATCATT AAAGAAGCCA	360
AAGATGGCAT CAAAGCTCTT CCAGAAGAGC TAAATCCAGT CGAAGAAGTT GCAAGCGCTG	420
CAGCTGCTCC AGTTGCCCAA ACTGCTATCC CAGAAGGAAC TGTATCGGA GACGGTAAAT	480
TGAAAATCAA TCTTGCCCGT CTTGACACAC GTCTACTTCA CGGTCAGGTT GCAACTGCTT	540
GGACTCCAGA TTCAAAGCA AATCGTATCA TCGTTGCTTC AGATAACGTG GCTAAAGACG	600
ACCTTCGTAA AGAATTGATT AAACAAGCAG CTCCAGGTAA TGTCAAGGCT AACGTGGTTC	660
CAATTCAAAA ACTGATTGAG ATTTCAAAAG ACCCACGTTT TGGAGAAACA CATGCCCTTA	720
TCTGTGTTGA AACACCTCAA GATGCCCTTC GTGCCATCGA AGGCGGCGTG CCAATCAAGA	780
CTCTTAATGT TGGTTCTATG GCTCACTCAA CAGGTAAAAC ATTGGTCAAT ACCGTTTGT	840
CTATGGACAA AGAAGACGTT GCTACATTG AAAAAATGCG TGACTTGGGT GTTGAATTTG	900
ATGTCCGTAA AGTACCAAAT GATTCTAAAA AAGATTTGTT TGACTTGATT AACAAAGCCA	960
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TAGTAGTCGT TGTAGCCTTC TTTGCAGGTC TTGAAGGCAT CCTCGACCAG TTCCAATTTT	1080
ACCAACCACT TGTAGCCTGT ACCCTTATTG GGCTTGTAAC AGGTCACTTG GAAGCAGGGA	1140
TTATCCTCGG TGGATCGCTT CAAATGATTG CCCTTGGTTG GTCAAATATC GGTGCTGCTA	1200
TCGCTCCTGA TGCTGCACTT GCTTCTGTCG CTGCTGCCAT TATCATGGTT CTTGGTGGTG	1260
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GACTTTTCTT GACAATGATT GTTCGTACAA TTTCAGTTGG TTTGGTTTCACT ACTGCAGATG	1380
CTGCCGCTAA AAAAGGTGAC TTCGGCGCTG TGGAGCGTGC GCATTTTCATC GCGCTACTTT	1440
TCCAAGGACT TCGTATCGCG CTTCTGTCAG CTCTTCTCCT TATGGTACCA ACTGAAACTG	1500
TACAAAGTAT CCTTAGTGCC ATGCCAGACT GGCTCAAAGA TGGTATGGCT ATCGGTGGTG	1560
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GGCCATTCTT CGCTCTTGGT TTCGTTCTCG CTGCTGTGTC AGATATTACT CTAATCGGAT	1680
TCGGTGCTAT CGGCGTTGCT ATCGCTCTTA TCTACCTTCA CCTTTCTAAA ACTGGTGGAA	1740
ATGGTGGCGG AGGAGCCGCA ACTTCTAACG ACCCAATCGG CGATATCCTA GAAGACTACT	1800
AAGATAAGAA AGGACTGAAA ACATCATGAC TGAAAAACTT CAATTAACCTA AATCAGATCG	1860
TAAAAAAGTT TGGTGGCGTT CAACCTTCTT ACAAGGTCTT TGGAACCTTG AACGGATGCA	1920

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AAACTTGGGC	TGGGCTTATA	CACTCATTCC	AGCTATCAAA	AAACTCTATA	CTAAAAAAGA	1980
AGATCAAATC	GCTGCTCTTG	AGCGTCACCT	TGAGTTCTTC	AACACTCATC	CATACGTAGC	2040
TGCTCCAGTC	ATGGGGGTTA	CTCTGCGCT	TGAAGAAGAA	CGTGCTAACG	GTGTGGAAAT	2100
CGATGACGCT	GCTATCCAAG	GGGTAAAAAT	CGGTATGATG	GGACCTCTTG	CTGGTATCGG	2160
TGACCCAGTA	TTCTGGTTTA	CAGTACGCCC	AATCCTTGGA	TCTCTCGGTG	CTTCACTTGC	2220
CCTTACTGGC	AATATCTTGG	GGCCACTCCT	CTTCTTTGTT	GCATGGAAC	TGATTTCGTAT	2280
GTCATTCTTG	TGGTATGTTT	AAGAGATTGG	ATACAAGGCT	GGATCAGAAA	TCACTAAAGA	2340
TATGTCTGGT	GGTATCCTTC	AAGATATCAC	TAAAGGAGCT	TCTATCCTTG	GGATGTTTAT	2400
TCTTGCTGTC	CTTGTTCAAC	GCTGGGTAAA	TATTAAATTT	GCTTTCGATG	TTTCTAAAGT	2460
TCAACTAGAT	GAAAAGGCTT	ATATCCATTG	GGATAAATTG	CCAGAAGGGT	CTAAAGGTAT	2520
CCAAGAAGCA	TTCCGACAAG	TAGGACAAGG	ATTGCTCTCA	ACTCCTGAAA	AAGTTACTAC	2580
TTTCCAACAA	AACTTGGATA	TGTTGATTCC	TGGATTATCA	GGACTACTCC	TTACTTTACT	2640
TTGCATGTAC	TTACTTAAGA	AAAAAGTATC	TCCAATCACT	ATTATCCTTG	CCCTCTTCGC	2700
AGTGGGTATT	GTGGCACATG	TTCTTCACAT	CATGTAATCA	AGCAACTAAA	AAGGAACCAG	2760
GTTCTAAAAT	CTGATTCCTT	TTTTCTATGC	TTTTATTTCAG	CCAAGGCTCC	CATTGGATCC	2820
CATGGTGCAA	GTACGATTGG	TTCTGCTCCA	TAGGCAGCTT	GTTCTTCTGC	TGTCAGCAAT	2880
TCCTTACGAA	CAACGATTTG	GTATGTGTAT	TCGTCATCC	AAGCGTCTGA	GGCAACAAAG	2940
TAACCATCTG	TACCGACCTT	GTCTCCCCAT	GAGTTTTCAA	CCTTCCACTT	GGTTGATTTA	3000
CCATTTTCGT	CCAAGTCAAC	ACCTGTCAAG	ACCATGGCGT	GGGTCACTAA	GCTTTCCTAA	3060
TAGTCCAAAC	GTCCAGCCTT	GTCTTGAGTA	AGTTTAATGT	CCATGCTTGA	TTCAAAGTCA	3120
TAAACATCTG	TCGCAAGGAT	GCCAGCTTAC	GGTTGCTGAG	CTGGCCGACA	TCAGAACCAA	3180
ACCAAACAGT	CTCACCTGCT	TGCATTGTTG	CAATCGCCAA	TTCTTTCAAG	CGCTCCATTG	3240
GAACGTTGAT	GTAGCGAACT	GCACGGCTAC	CAACCACATT	CCCCAACATC	TCAACTGTGT	3300
AAGATTTTCC	GTAAGGTTTA	TCAGCAGTTG	GAGCATTGAT	AACAGAAACG	TAGTCTTCTA	3360
AAGGAAGATT	GACATATTTT	TTGTAAAACT	CTTGTGGTGT	GATTCCCTTTT	TCACTTTTGT	3420
AGTTGTTATC	TTTATCGCGA	TAAGCAAAGT	CAAACCTGCG	TGGTGGAAAG	CCTAATGACA	3480
TAGCAAGAAA	GTTAAAGATT	TCTTGCAAGA	GGTCTTCTTT	CTTAGCTTGA	ACAGTCGCTT	3540
GATCTGCACC	AGAAACAAGC	AAGTCACGCA	AGATTGAGC	ATCTTGACGA	AGCAATTTAT	3600
TAAGGATCGC	ATTAGCTCA	CGACTGCTGC	TAGATGAAAC	AGACTCAGGA	TAAACTGACT	3660
TAGGCACGAC	ACCGTATTTT	TCAAAGAGGG	AAACGACCAT	ATCCCATTGA	CCGCCATCTT	3720



1209

GTTGAGGTGT TTGGAGTAAG AAGCTAACtT GCGGCTAGTC AATTCTTGCT CTGAAGTCGC	3780
AATGACTTGC TCCAAGAACC AGTTTGATTT CTCATACTTA TCCCAGAAGA AAGTGTGGGC	3840
TTGTGACAAC TCAAAGTTCT CCAATTTGTA TTGCGAGATG AGTTTGTGGC GGAAGGTGTT	3900
GAGAGCCGCA AACATCCAGC AACGACCAGA CGCTTTCTGG TTAGTGACCT TGTCCTTGGT	3960
TAAATCCAAT GAGAAAACAG GTGTGTTGTC TACATGGCTT TGGCGACGTT CCAGAGCTGC	4020
AAAAATTCCG TTGTGGCTGG CAGCATTTTC AATCGCTTGG TATTTTACAT TTGCTTCATA	4080
GTTGGCAAAT AGTTTATCAG TAAATGATTC TTGAATCGCG TTCATAGATT CCTCCTTTTA	4140
GTCTACAGTG TATTGG	4156

(2) INFORMATION FOR SEQ ID NO: 212:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3902 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 212:

AAAAACAACA AAATAAAACA AAAACAAAAA TATCGAGGTT TATTTTCAAA ACTTTCGATA	60
TTTTTATTAA GTTATTATTT TGTTGTTTCT AGTTTACTTT TTGATGGTTA AGAGTGGTGG	120
AGAATTATAC TCAATGAAAA TCAAAGAGCA AACTAGGAAG CTAGCCGCAG GCTGTACTTG	180
AGTAGCGCAA GGCGAAGCTG ACGTGGTTTG AATTTGATTT TCGAAGAGTA TTAGTGCAAA	240
CCGTAGTTGT AGTCATCATC TTGCATGGCT TCAACTTCGC CAAGAAGGTA ACCATTTCGG	300
ACTTGAGAGA AGAAGTCATG GTTGGAAGTT CCTGTTGAAA TACCGTTCAT AACGATTGGG	360
TTGACATCTT CAGCTGAATC TGGGAAAAGT GGATCTTGTC CCATGTTCAT GAGAGCTTTA	420
TTGGCATTGT AGCGAAGGAA GGTTTTAACC TCTTCAGTCC AACCAACACC GTCATAAAGA	480
CTCTCTGTGT AGCCTTCTTC ATTTTCATAA AGAGTATAGA GTAGGTCGTA CATCCATTCT	540
TTGAGTTTTT CTGCTCTTC TTCAGGTAAT TCATTGAAAC CAAGTTGGAA TTTGTAACCA	600
ATGTAGGTTT CGTGAACAGA CTCGTCACGA ATAATCAATT TAATGATTTT TGCAACGTTG	660
GCAAGTTTGT TGTTACCGAG ATAGTAGAGG GGAGTGAAGA AACCAGAGTA GAAGAGGAAG	720
GTTTCGAGGA AGACGCTGGC AACTTTCTTT TCAAGTGGGC TGCCGTTTAG GTAGATTTCTG	780
TTGACAATCT CAGCCTTCTT TTGTAGGTAA GGATTGGTAT TGGTCCATTG GAAAATTTCT	840
TCAATCTCAG CCTTAGTATT CAAGGTAGAA AAGATTGATG AGTAAGATTT AGCGTGGACA	900

1210

GATTCCATAA ATTGGATGTT ATTGAAGACA GCTTCCTCAT GTGGTGTACG GATGCTGCG	960
CGAAGGGCTT GAACCCAGT TTCAGATTGC ATAGTGTCAG GAAGGGTTAA ACCACCAAAA	1020
ACTTTTCCGA CCAAGTCTTT CTCTTTGTTA GATAGCTTTC TCCAGTCATC CAAGTCGTTT	1080
GATAAGGGAA TACGTGTATC GAGCCAAAAT TGCTCCGTCA GTTTTCCCA AGTTGATTTG	1140
TCGATGACAT CTTGATGGC ATTCCAGTTA ATGGCTTTGT AGTAAGTTTC CATTTAAAAT	1200
CTCTTTCTGT GTTTAGTATT GCGAACTCAC AATTATTTCT ACTTTACCAT AATTCTATAG	1260
GAGTATCGCA CAAAAGTCG GAAGCCCGAC TTTAAAATG TTACATAAAT TATGTTATGA	1320
CATAGTAGAT TTGATTTTAT CAGTGCTGCT TAGGGAAAAA TAGTGTTTCT ATGCTAGAAA	1380
CTAAATCACA CAGCTTTCAC ATTGGTTGGC GCCGACTTCT CCACCGTCAT CTGTAAAGGT	1440
ACGGACGTAG TAGATAGACT TGATTCCCTT GTTAAAGGCA TAGTTACGAA GGATGGACAA	1500
GTCACGTGTC GTTTGTTTAT TTTCCCTCTT CCATTCGTAA AGGCCTTTTG GAATGTCACT	1560
GCGCATGAAG AGGGTGAGTG AAAGTCCTTG ATCCACGTGT TCAGTCGCAG CAGCGTAAAC	1620
ATCGATGACT TTACGCATAT CCATATCGTA GGCAGAAGTG TAGTAAGGAA TGGTTTCTGT	1680
AGACAAGCCA GCAGCAGGGT AATAGATTTT ACCAATTTTC TTCTCTTGGC GTTCTTCGAT	1740
ACGTTGCGTA ATCGGGTGA TAGAAGCAGA AACGTCGTTG ATATAGCTGA TAGAACCATT	1800
TGGCGCTACA GCAAGGCGAT TTTGGTGGTA AAGACCCTT TCTTGAACCT TGTCGCGAAG	1860
TTACGCCCCA TCAGCAACAC CAGGGATAAA GACATTTTTC AAGAGTTCTT TAACACGGTC	1920
TGATGTTGGA ACAATTCAC CAGTTACATA CTGTCAAAG TAACTTCCGT TAGCATAGTC	1980
TGATTTTCA AAGTTGTGA AGGTAATACC ACGTTCACGT GCAATATTGT TTGACTCTAC	2040
CAAGGTCCAG TAGTTCATAA GCATAAAGTA GATGCTTGTA AATTCAACAG ACTCAGGTGA	2100
ACCATATTCA ATGAGTTGTT GGGCAAGGTA GCTGTGCAGT CCCATGGCAC CGAGACCAAA	2160
GGTGTGGGCT TGGCTATTTT CATGGTCAAT CGTTGGTACA GCTACGATAT GTGAACATATC	2220
TGTAACGAAA GTAAGGGCAC GAACCATAGC ACGGATAGAA CGACCAAAAT CAGGTGAAGT	2280
CATCATGTTA ACCACGTTGG TTGAACCCAG GTTACATGAA ACATCTGTTC CCATTTGAAG	2340
GAATCTTGA GCATCGTTGA TCAAGCTTGG TTCTTGAAC TGAAGAATCT CAGAACACAA	2400
GTTACTCATG ATAATCTTTC CATCAACAGG ATTTGCACGG TTAGCCGTAT CGATGTTGAC	2460
TACATAAGGA TAGCCAGACT CTTGTTGCAA TTTAGAGATT TCAGTTTCCA AATCCCAGGC	2520
CTTGATTTTT GTCTTGCAGT TATTTGGATT TGCGACCAAT TCATCGTATT TTTAGTAAT	2580
GTCGATGTAA TTGAATGGCA CACCGTATTC TTTTCTACA GAGTAAGGGC TGAAGAGGTA	2640
CATTTCTTCA TTTTACGAG CCAATTCGTA GAATTTATCA GGTACTACAA CACCAAGTGA	2700

1211

TAGAGTCTTG ACACGTACTT TTTCATCAGC GTTTTCTTTC TTAGTTGAAA GGAAAGCGAT	2760
GATATCTGGG TGAAAGACGT TGAGGTAGAC AACACCAGCA CCTTGACGTT GCCCCAATTG	2820
GTTGGAGTAA GAGAAGCTGT CTTCAAAAAG CTTCATAACA GGAACGACAC CTGAAGCAGC	2880
TCCTTCATAG CCTTGATAG GTGCACCAGC TTCACGAAGG TTGCTGAGGG TAATTCCCAC	2940
ACCACCACCA ATACGTGAAA GTTGAAGAGC TGAGTTGATA GAACGCCCGA TAGAGTTCAT	3000
ATCATCCGTC ACTTGGATTA GGAACAAGA TACCAACTCC CCACGACGAG CACGTCCAGC	3060
ATTCAAGAAG GAAGGAGTAG CAGGTTGGTA GCGTTGGTGG ATGATTTTCAT TGGCAATATC	3120
GATTGCAACA GCTTCATTCC CATCAGCGAA ATAAAGGGCA TTGAAGAAGA CACGGTCTTC	3180
CATATTTTCA AGATAGTATT CACCGTCATT AGTCTTTAAG GCATATTGAT TGTAAATTT	3240
ATAAGCTGCC ATGAATGACT TGAATTGGAA GTTTTGGTCT TTGATAAATT GAGCTAATTC	3300
TTCCAAGAAC TCTGGACGGT ATTTCTTGAT AAAGGCTGTT TCGATGTAGT TGTGTTCAAT	3360
GAGGTAATTG ATTTTGTCTT TGATTGAATC AAAAACCATA GTGTTTGGAA CTACATTTTC	3420
TTTAAAGAAA GCATCCAAGG CTTCTTGTC TTTATGAAGC ATGATTTGTC CATTACAGG	3480
ACGGTTAATT TCGTTATTAA GACGGAAGTA AGTCACGTCT TCAAGATGTT TTAATCCCAT	3540
AAAATTTCCC TTATCTAATT ACAAAGAAA GGCTTCTAAG TTAGCCCTAA AAGCAGTTTC	3600
TTCTGGATGA TGTACTAAGA TTATGCTAAT TGTTCAGTT TTCCTGGTTG GAAACCTGAA	3660
AAGACTTCAG TTGGTGTGTTG GATAACAGGA GCTGCGCTAA AACCAGAGCTC TTTAACTTGA	3720
TCGACGTACT CAGGTTGCTC ATCAAGATTG ATTTACAGAT AAGAGACATT ATTACTGTCC	3780
AAGAAACGCT TGGTCATTTT ACATTGGACA CAATTGTTTT TAGAATAAAC GGTACCATT	3840
GTGTAACCTC TCTTCAAAT TTAATACTAT CTTAGTATAT CAGAAAATAA AATTTGTGCG	3900
GG	3902

## (2) INFORMATION FOR SEQ ID NO: 213:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2456 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 213:

TATTGAAGCT ATTGTAGACT ACAAAGATAA GGATTGTCAG TTAGTAGGCG GTGAGACTCA	60
CTGATAACCT AAAAAGGATA GTCAATTATG CTTGTTTACT AACTATTAAC TATGCTAAAT	120

1212

CAATTGAGGT TGTTCACATA AAACCTCTATA TCAGAGAAGC CTGATATAGA GTTTTTCTT	180
GCTAGTTTTA GGATTTTTTT GTAAAATAGA AAAAGTGAAG AGAGGTATGA AATGAGCAAG	240
AAAGATAAAA AAATCGAAAT TCAAGTAGCG GATGCCAAG TTAATGTTGC TAAAGACAGT	300
TTTGAAGGTT ATACATTGAC TATCGGTAAA AAAGTTATCG GAGAAATTGC CGAATTAGAC	360
GGACAATTTG CCATTATAAA GAATGGGAAT GTCGATAGTT TTTATAAAAA ATTGGAAAAA	420
GCTGTGGAAT TTTTGATTGA AAATTATAAT TTAGCAAAAT AAGTCTTGTT TTTTGAAT	480
TTTCATGATA TAATAGTCCA TGTGATTGT AGGAGAGATA GCGAAGAGGC TAAACGCGGC	540
GGACTGTAAA TCCGCCCTT CGGGTTCGGG GGTTCGAATC CCTCTCTCTC CATTTTCATTA	600
ATGGGGTATA GCCAAGCGGT AAGGCAAGGG ACTTTGACTC CCTCATGCGT TGGTTCGAAT	660
CCAGCTACCC CAGTTCTTAG GTAATAATCA AGATAGAAAG CAAAATATCT TAGGGTATTT	720
TATTTTTATA ATTGAAAGAC GTGAATGATA TGAACATGTC CTGCGGGTG CTTAGGAAAA	780
AAATTATAAG TATGTCAAGT TTAAGAAAAA CTGATTGTT GGAGGATTTT TTAGATGAAC	840
GAATTTGAAG ATTTGCTAAA TAGCGTTAGT CAAGTTGAGA CTGGTGATGT TGTAGTGCT	900
GAAGTATTGA CAGTTGATGC GACTCAAGCT AACGTTGCAA TCTCTGGAAC TGGTGTGAA	960
GGTGTCTTGA CTCTTCGCGA ATTGACAAAC GATCGTGATG CAGATATCAA TGACTTTGTT	1020
AAAGTAGGAG AAGTATTGGA TGTCTTGTA CTTCGTCAAG TAGTTGGTAA AGATACTGAT	1080
ACAGTTACAT ACCTTGATC TAAAAACGC CTTGAAGCTC GCAAAGCATG GGACAAACTT	1140
GTTGGTCGCG AAGAAGAAGT TGTTACTGTT AAAGGAACGC GTGCCGTAA AGGTGGACTT	1200
TCAGTAGAAT TTGAAGGTGT TCGTGGATTT ATCCCAGCTT CAATGTTGGA TACTCGTTTC	1260
GTACGTAACG CTGAGCGTTT TGTAGGTCAA GAATTTGATA CTAAATCAA AGAAGTTAAC	1320
GCTAAAGAAA ACCGCTTCAT CCTTTCACGT CGTGAAGTTG TTGAAGCAGC TACTGCAGCA	1380
GCTCGCGCTG AAGTATTCGG TAAATTGGCT GTTGGTGATG TTGTAAGTGG TAAAGTTGCT	1440
CGTATCACAA GCTTCGGCGC TTTCTGTCGAC CTTGGTGGTG TTGACGGATT GGTTCACTTG	1500
ACTGAATTGT CACATGAACG TAATGTATCA CCAAAATCAG TTGTAAGTGT TGGTGAAGAA	1560
ATTGAAGTGA AAATCCTTGA TCTTAACGAA GAAGAAGGAC GTGTATCACT TTCACTTAAA	1620
GCAACAGTAC CAGGACCATG GGATGGCGTT GAGCAAAAAT TGGCTAAAGG TGATGTAGTA	1680
GAAGGAACAG TTAAACGTTT GACTGACTTC GGTGCATTTG TTGAAGTATT GCCAGGTATC	1740
GATGGACTTG TTCACGTATC ACAAATTTCA CACAAACGGA TTGAAAATCC AAAAGAAGCT	1800
CTTAAAGTTG GTCAAGAAGT TCAAGTTAAA GTTCTTGAAG TTAACGCAGA TGCAGAACGC	1860
GTGTCACTTT CTATTAAAGC TCTTGAAGAA CGTCCAGCCC AAGAAGAAGG ACAAAAAGAA	1920

1213

GAAAAACGTG CTGCTCGTCC ACGTCGTCCA AGACGTCAAG AAAAGCGTGA TTTCGAACTT	1980
CCAGAAACAC AAACAGGATT TTCAATGGCT GATTTGTTTG GTGATATCGA ACTTTAATCA	2040
AATTGAAAAT TCACAAAATC CTTTGTTTAC TAAACAAGGG ATTTTCTGG CTCTTTGTCA	2100
ACTGTAGTGG GTTGAAGAAA AGCTAAGCTC GAGAAAGGAC AAATTTTGTC CTTTCTTTTT	2160
TGATATTCAG AGCGATAAAA ATCCGTTTTT TGAAGTTTTC AAAGTTCCGA AAACCAAAGG	2220
CATTGCGCTT GATAAGTTTG ATGAGATTAT TGGTCGCTTC CAGTTTGGCG TTAGAATAGT	2280
GTAGTGAAG GGTGTTGACA AGCTTTTCTT TATCTTTGAG GAAGGTTTAA AAGACAGTCT	2340
GAAAAATAGG ATGAACCTGC TTAAGATTGT CCTCAATAAG TCCGAAAAAT TTCTCCGGTT	2400
CCTTATTCTG AAAGTGAAAC AGCAAGAGTT GATAGAGCTG ATAGTGGTGT TTCAGG	2456

(2) INFORMATION FOR SEQ ID NO: 214:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10974 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 214:

AAATAGGATA TAGAGACATC CTTCTGATCT GCTTTTWACA AAGTCCAATT ATATGCGGAT	60
CTATACCTCC ACAATGTCCA TTATTATmCC TAACTATAAT ATGAGCCGAA AACACTATAT	120
CCTTAATGTC TCCATATCCA TCAGGGATAT TAATATTAT TTTTCCACAA CTATATTGCA	180
TTGTAACCAT CTCCTTAAAC GACGCATTAT GATATTTGAT AGAGAAATTT TTATGAATAA	240
CTCAATAATT TTATAGTAAA TCATGCTTAT ATCTCAAAGA TACCTATTTT ATCTTGTCTC	300
GACCTTCTCC AAAGAATTGC TATAATACTA TTACAAATCC ATCTGCACTA CACTTCAAAT	360
TTTAGCACTG TATAAAAACG TTTCAATACA CTAACCTCAA GAAAACCTCC ACTATTAAAT	420
GAAAAAATTG ATAGAGATAA ATTAAAAATC TATATTGAAA CTCATCCCGA TGCTTATTTG	480
ACTGAAATAG CTGCTGAATT CAACTGTCCT CCAACAAC TAATTACGC TCTAAAGGCT	540
ATGGGATATA GTCTAAAAAA GAGCCGTACC TACTGCGAAC AAGACCCAGA AAAAGTAAAT	600
CGGTTCCCTTA AAGAATTGAA TCACCTAAGC TACCTGACTC CTATTTATAT TTATGAGACA	660
GGGGTTGAGA CCTATTTTTA TCTCGAATAT GATCGAGCCT TGAGCAGGCA GTTAGTCTCT	720
CTGGAAGAAG ATATAATTAT TTGAATTAAG ATCGAGACAA CGCACACCAG AGATTGCGAT	780
ACTGTTATAG AAGTACTAAT GCCCTTTTTT GTTCAATAT ACTATGGCTC CGATGACCTA	840

1214

TAAAGATACG ATGACGAGTG ACTTTTTCGA AGCTTGCTTC CAAAAATTCT TACTACCTAC	900
TTTAGATACA CCATCCCTTA TCATTATGGA CAATGCAAGG TTTCACAGAA TGAACATGTG	960
TAAGGAGCAG GGCATAGACT GTTACCACTT CCTACCTATT CACCCGAGTA TAATCCCATT	1020
GAGAAAATAT GGGCTTACAT CAAAAACATC TCAGAATAAT ATTGTCAAAT TACGATGCTT	1080
TTCTTGAGGC ACTTTTGTCC TATTCTTGTT TCAGCCGACT ATACTCCGTT ATTGGGCAGC	1140
TACGGAACAG TCGATGGGAC GATGGGGGGA CATAAAAAA TCCTCCAGTT TTGTTTTTTA	1200
TAACAGTATA CTGGAGAATT GACAATCTCG GTAGATACCT CGTTATAGCG CGGTTACTTA	1260
TTAGGCAGTT AAAAAACAAC TGTGAACAGA AAACATTCCA GAGTCAGACA AGACTTTGGA	1320
ATGTTTTTGGC TCTATAATTT CTGTAGTGGG TAATCCCACC CCAGGAATTA TAGGGTCGTT	1380
TCTTGTAGAA AAAAAGCCCC ATATGACCTA TAATGAAAAG CGTCTAACCA ACTCATTAGA	1440
AAGGGTTCAT ATGGAACAAC TTAAGAATAC CACAGATTTG CTCGGATTGG AAGACAAAAA	1500
TATCAAAATC TTGTCTGTTC TGAAATACCA AACCCTCTA GTCGTTCAGG CAAAGTTGGA	1560
TTCCCCCGCT CCTCCTTGTC CTCATTGTCA AGGGAAGATG ATCAAATACG ACTTCCAGAA	1620
AGCCTCTAAA ATTCCGCTTC TCGACTGTCA GGGTTTACCC ACGGTACTGC ATCTCAAAAA	1680
GCGCCGCTTT CAGTGCAAGA ATTGCCTTAA GGTGGTCGTT TCTCAAACAT CCATTGTCAA	1740
GAAAAATTGC CAGATTTCCA ACATGGTGAG AAAAAAATC GCTCAGCTCC TCCTTGAAAA	1800
GCAGTCTATG ACTGAGATTG CCCACAGATT GGCGGTCTCA ACTTCCACCG TCATCCGAAA	1860
ACTGAGGGAA TTAAAGTTTG AAACCGATTG GACCAAGTTG CAAAAGTTA TGAGTTGGGA	1920
TGAGTATAGC TTCAAAAAGA GCAAAATGAG CTTCAATTGCC CAAGATTTTG AGTCCAAATC	1980
CATCCTCGCA ATTTTAGACG GGCGAACTCA TGCGGTGATT CGAAACCATT TCCAACGCTA	2040
TCAGAGAGAG GTTCGGGAGC TGGTCGAGGT CATCACCATG GACATGTACA GCCCTTATTA	2100
TGGGCTCGCT AAGCAACTCT TTCCAAAGGC GAAGATTGTT CTGACCGCT TCCACATTGT	2160
CCAACATCTG AGCCGAGCTA TGAACCGAGT ACGAATCCAA ATCATGAACC AATTTGACCG	2220
AAAATCCTTG GAGTATCGGG CGCTCAAGCG CTTTGGAAAC CCTCGCTTTT TCGTTTCTAG	2280
GCTCGGGCTA AATCAGTCCA CTGGACTGAT TTA CTACACC AGTATAGCTT CAAGCTCTGT	2340
CAGAAACGAT TCTATCAGCC CACGTTTCGA ATGCACTTAA CCCATCGGGA AGTACGAGAT	2400
AAGCTGCTTT CTTACTCTGA GGGATTACAG GTTCACTACG AACTCTATCA ACTCCTGCTC	2460
TTTCATTTTC AAGAGAAGAA TGCCGACCAT TTCTTTGGAT TGATTGAGCA AGAACTGCCA	2520
ACGGTTCATC CGCTTTTTC AACGGTCTTT TGGACTTTT TAAGGGATAG AGATAAGATT	2580
ATCAACGCAC TTAAGCTGCC TTATTCCAAC GCTAAACTTG AAGCGACCAA TAATTTGATT	2640

1215

AAGATTATCA AGCGCAAAGC CTTTGGTTTC CGGAACCTTA ACAATTTTAA AAAACGGATT	2700
TTGATGACTT TGAACATCAA AAAAGAGAGT ACGAATTTTCG TACTCTCCAG ATTGCAGCTT	2760
TTCGCCTACC CACTACACTT GACAAAGAGC CACTCTTTAT TCCATGGTAT CAAAGGCAAG	2820
ACTTGGTTTG GCATTGAGGT CCCAGCCTGC GAAGTTTCTT TTGTTCCACT CGCTGACGCT	2880
GGCATAGGCA ATCATACTTG CATGTCTCC GCAGAGTCGC AGAGGGGGGA TGATAACCTT	2940
GACATCTGTG ATTTTCGGCTG CTAGGCGTTC TCTGAGACCT TTATTGGCTG CCACACCACC	3000
TGCCACAACCT AGGATTTTAA CAGGATATTT CTCCAAAGCC TTCTTGGTMT TTGCCATGAG	3060
AATGTCCATA ACTGCTGCTT GGAAGGAAGC ACACAAATCT TCTGTAGACA GGCTTTCTCC	3120
CTTTTGCTCG GCATTGTGAT GAAGATTGAT AAAGGCAGAT TTCAAACCTG AGAAGGAGAA	3180
CTCCAGATTA TCTTCCTTAA TCATGGCAGC GGGGAAATCA TAAATATCCT GCCCCTGATG	3240
AGCCAGCTCG TCAATCTCAC GACCTGCAGG ATAGGTCAAG CCCATGACAC GGCCGACCTT	3300
ATCATAAGCC TCACCAACCG CATCATCAGC GGTTCCTCCA ACAATCTTAT AATCTCTGC	3360
CTCCGAAACA TAAACCAACT CTGTGTGTCC GCCGCTGACC AAGAGGGGTA GCAAGGGAAA	3420
CTCCAAAGGC TCCACACTCT GAGCTGCCAT GAGGTGCCCA GCCATGTGAT TAACAGGAAT	3480
CAGTGGAAGT CCGTGAGCCC AAGCAAAGGC CTGGCAGCT GACAAACCAA CTAGCAAGGC	3540
TCCGACCAAG CCTGGTCCGT AGGTAACCGC AACAGCTGTC ACGTCCTCTT CGGTAATCCC	3600
TGCTTCTGCC AATGCCTCCT CGATACAGGC TGTAAATGACC TCGACATGGT GACGACTGGC	3660
TACTTCGGGC ACTACGCCAC CAAAACGTTT GTGACTCTCA ATTTGACTAG CAATGACATT	3720
GGACAAGAGC TCATCGTCGT TTTTCAAGAC GCGGACACTG GTCTCATCAC AGGATGTCTC	3780
AAATGCTAAA ATATATCTAT CCTTCATCTA TTTCTCTCTT CATGATAATG GCGTCCTCGA	3840
CTGGGTCAATG GTAGTAGGCC TTTTCGCTCAG CGATAACTGT CATCTTTTCT TTCTTGTAAG	3900
ATGCTTGCGC TCGTTGATTT GACTGTCTGA CTTCGAGGAA AATTTCTTTG TCTGTGGCA	3960
ATTGAGCAAA CAAGGCTGAC GCAATCCCCT GACCCTGATA AGCTCCTTTG ACAGCGATTT	4020
GCAGGACTTC TGCTTCAAAA AGATTCTCCT GCACAGCTAG AAATCCAATC ACTTCTGCCC	4080
CATCATAAGC CAATGCATAC CAAGTCTGGT CTGCGGACAG ATCTGCTTGG ATTTGCTCCA	4140
GAGTCCAAGG ACTGACTAGG TAAACAGCTG CCATAACAGC GTAGATGGCT TGAGCTAGGT	4200
CAGGCTGTTG TTGAATTGCG TTGATTTCTA TCATAGGCGT TTAATGTAAG ACTCGCCAGA	4260
CTCGGTATGG TTCTTGAGCC AGTTTCTCTC AGCCTCGACT CGTTTGAGGT AATTCGGCAC	4320
AAAATCATGC AAGGAGTCTG CTTCTTGTG CCAGGCCAAA AGAGCTAGAT TAGCTGCATT	4380

1216

GGGCAATGTT TCTTTGTAAT CAGTCCTTGG CAAGTGTTTT TGAATCTGCT CAACAAAGGG	4440
GCCAACTTCT CCGACAAAGG TTACCTGACT AGTACCCTTG ACTTTTCTA GCACCTCTTC	4500
AAAAGATAGG TCGCCTTCTG CCATGACAGG TTTGGCATTTCATATAATC CTGCATAAAC	4560
ATTATTGCGA CGCGCATCCA TCAAGGGGAC AAACAAACCT TCTTGTGTAT GGGGCACCAG	4620
AGCCAAGAGA CTCGACATAC CAACCAACTC GATGTTTCAGG GTGTGAGCTA AGGTCTTAGC	4680
AGTTGCTACC GCAATTGCGA AGCCTGTATA GCTACCCGGC CCTTCAGCTA CCACGATTTCG	4740
GTCCAAATCC TTGGGTGTCC AATCCAACT TGCCATCAAA AAATCGATGG CAGGCATAAG	4800
AGTAATACTG TGATTTTCT TAATATTAAT CGTCGTCTCG GCAAGAACCT GCTTATCTTC	4860
TAAATAGCC AGAGAAAGAG CCTTGCTGGA CGTATCAAAA GCTAATACTT TCATAACACA	4920
TTCTATCTT TTTGTCTGCT TACTATTATA CTACAAAAGC TGGCACATGG GAATTTTCTT	4980
TGCCCCAGA CAAGAGTGCC CTCACTTAAC TAAAAATAAT TTAATAAAT GCTCACTTTT	5040
CCTTTTCTT TCCGAATATA AAAGTGAACA AGAAAAAGG AGGAAAGTTC AATGACAAAT	5100
TTTGACATTC TTGACAATCA ATTTTATCC TTATCTGAAA ATGAATTATC AGATATTGAT	5160
GGCGGTCTCG CTCCTTGGT TATCTTTGGA GTAGCAGTAT CTTGGAAGGC TATTGCAGGT	5220
GGAACAGCAC TTATAGGTTG TGGTTTGGA GCTGGTTATT TTTTAGGAGG AGATTAATAT	5280
GATGAAAGAT TTGAACAATT ATCGTGAAT TTCTAATAAG GAATTGCAAG AAATCAAGGG	5340
TGGCTTTGGT GTCGGTGTG GTATCGCTTT ATTTATGGCA GGTATACCA TTGAAAAGA	5400
CCTTCGTAAA AAGTTTGGA AGTCATGCTA GATAAGAAAC ACATTTTATAG AAGGATAAAT	5460
TTTATTGTCT TCATCTCTTA CAGTTTGCTC AGCATTCTCA ATGATTGAA CATTACTACC	5520
ATCCCTTAC CATTCGATTT ATCTGTTGT ATGTTTAT TTTTATGCTT CAACTCTATT	5580
TTTGATCAGA ACAATGACTC CCATAAAAT AATAAGCTTT GAAAATCCA TTGTCATGTC	5640
ATGTTAGAAA AATGCAAAGA CCACCTCATC TTGATAGATG GGGTGGAATT TTCGTGTCGT	5700
AAATCTACTA TCTCTACATT CCCAAACAAA AAACCCAGC ATAAGCAGGG CATCTAAGCA	5760
TTTAATTCAA AGTAAATAC AAACCAAACG ACATAGGTCA CGAGGAGGAG AAAAGCGAG	5820
TAGAGAGTCA CAAAGGTCAT TTTCCACAAG AACTTGTTTT GTCGTCGTT CAGTTTGGA	5880
AATAGAAGAT TCCCCGCATA AACGCAAGCA AAAAAACAA TAAAAGCTAC CAAGCGAGCT	5940
CCGATAGCAA AAGCAAATAA GTTATACATA GGGCAACCTC CTTGACTTAA AATCTATATG	6000
GAATTATGAC AAGCAATAAA TTTCACTTCC GTTATCAACA TAATACATTT TCTTTATTTT	6060
TGAAAACGCT TACCAAAGAA ATCGTCCCCT AACTTTCTCG TTTCCGTCTT TACTAATTT	6120
TTCAATTTGT GGTATAATTG AAATAATTGT AACGAATCAA GGTCAATCTA GACACAAAAT	6180



1217

GGAATGAAAT CAAGCAAATA TCTGCTAAAA GTTTGGAATA AGCTGACCTG TAAATAGAAA	6240
GGAACTATAT GATTTACAAA GTTTTTTATC AAGAAACAAA AGAACGTAGC CCACGCCGTG	6300
AAACAACACG CACGCTTTAC CTAGACATCG ATGCCAGCTC AGAACTTGAG GGCCGTATCA	6360
CTGCTCGCCA ACTTGTGAA GAAAATCGCC CAGAGTACAA TATCGAGTAT ATCGAACTCT	6420
TGTCTGACAA ATTGCTCGAT TACGAAAAAG AAAGTGGCGC CTTCGAAATT ACGGAGTTCT	6480
AATATGGCCT-ACACTCTTAA ACCTGAAGAA GTGGCGCTTT TTGCCATCGG TGGTCTAGGA	6540
GAAATCGGGA AAAACACTTA CGGAATTGAA TACCAAGACG AGATTATCAT CGTCGATGCT	6600
GGGATTAAAT TCCCAGAAGA TGACTTGCTT GGTATCGACT ATGTCATTCC TGACTACTCT	6660
TACATCGTGG ACAATATCGA CCGCGTCAAG GCTGTTTTAA TCACACACGG ACACGAGGAC	6720
CACATTGGTG GGATTCCGTT CCTACTCAAG CAAGCAATG TCCCTATTTA TGCTGGACCG	6780
CTTGCCCTTG CTTTGATCCG TGGGAACTC GAAGAACACG GCCTCTTGCG CAACGCCAAA	6840
CTTTACGAAA TCAACCACAA CACCGAGTTG ACCTTTAAAA ATCTCAAGGC AACTTTCTTT	6900
AGAACGACTC ACTCTATTCC AGAGCCTTTG GGGATTGTCA TTCATACTCC TCAAGGGA	6960
ATCGTCTGTA CGGGTGACTT TAAGTTCGAC TTTACTCCAG TTGGAGAACC TGCGGACTTG	7020
CATCGTATGG CTGCGCTTGG TGAAGAAGGC GTGCTCTGTC TCCTGTCTGA CTCGACAAAT	7080
GCGGAAGTAC CAACCTTTAC CAACTCTGAA AAAGTCGTTG GTCAGTCCAT TATGAAGATT	7140
ATCCAAGGTA TTGAAGGACG TATCATCTTT GCATCCTTTG CCTCAAATAT CTTCCGTCTC	7200
CAGCAGGCAA CAGAAGCTGC TGTTAAGACT GGACGCAAGA TTGCGGTCTT TGGTCGTTCT	7260
ATGGAAAAGG CCATTGTCAA CGGAATCGAT CTTGGCTACA TCAAAGCTCC TAAGGGAACC	7320
TTTATCGAGC CAAATGAAAT CAAAGATTAT CCTGCAGGAG AAGTTCTTAT CCTCTGTACA	7380
GGTAGTCAGG GTGAGCCTAT GGCAGCCCTC TCTCGTATCG CCAACGGAAC CCACCGTCAA	7440
GTACAATTAC AACCAGGTGA TACCGTTATC TTCTCTTCTA GTCCCATCCC TGGAACACT	7500
ACTAGTGTC AACAAGCTGAT TAACATCATT TCTGAAGCTG GTGTCGAAGT TATCCACGGT	7560
AAAGTGAACA ATATCCATAC ATCTGGACAC GGTGGTCAGC AAGAGCAAAA ACTCATGCTC	7620
TGCTTGATTA AGCCAAAATA CTTTCATGCCT GTCCACGGTG AATACCGCAT GCAAAAAGTC	7680
CACGCTGGAC TAGCAGTGA TACTGGTGTT GAGAAGGACA ATATCTTTAT CATGAGCAAT	7740
GGCGATGTGC TTGCCCTTAC TGCTGACTCA GCTCGTATCG CAGGTCATTT CAACGCCCAA	7800
GATATCTATG TCGATGGAAA TCGTATCGGT GAAATTGGCG CAGCTGTCCT CAAAGATCGT	7860
CGCGATCTAT CTGAAGACGG TGTCGTTCTG GCAGTTGCAA CTGTTGACTT CAAATCGCAG	7920

1218

ATGATTCTAT CTGGTCCAGA CATCCTCAGC CGAGGCTTTG TCTACATGAG AGAGTCTGGC	7980
GACTTGATTG GCCAAAGCCA GCGTATCCTC TTCAATGCCA TTCGTATCGC ACTGAAAAAT	8040
AAGGATGCTA GCGTGCAATC TGTCAATGGT GCCATTGTCA ACGCTATTCG CCCCTTCCTC	8100
TATGAAAATA CCGAACGTGA ACCGATCATC ATCCCGATGA TCCTCACACC AGATGAAGAA	8160
TAAAGCAAGA AAACAGCCCC GTCCTCGGAG CTGTTTTTCT CTATGCTTTC TTTTGAGATT	8220
AAAATCATA CTCAATGAAA ATCAAAGAGC AAAGTAGGAA GCTAGCCGTA GGTGCTCAA	8280
AGCACTGCTT TGAGGTTGTA GATAGAAGTG ACGAAGTCAG TAGCCATACC TACGGCAAGG	8340
CGACGTTGAC GCGGTTTGAA GAGATTTTCG AAGAGTATCA ATAAAAATCG AAATCAGACT	8400
AGAAGGCTAA GCGAAAGCAT AACTTGAGTT AGCTCCCATG GTTCGGGAAA CTATGGGAGG	8460
CTGGAGATGA ATCAAAGCCA AGCTTTGAAC TCATTCTGTA GAAGCCGACG ACGTATCATT	8520
TTGATTTTGT AAGAGTTTGA GAAATACTAC GATTTTACC TTCCAGATAC ACCATCAAAA	8580
TAGAAATATC TGCTGGGTTT ACTCCCGAAA TACGGCTGGC TTGGCCGATG GTTCTCGGAT	8640
TGATGAGTTT GAACTTCTGA CCGGCTTCGG TTGCGATAGA ATCAATGTCA TCCCAGTCGA	8700
TATTGGCCCG AATGCGTTT TCTTCCATGC GTTTCATCTT GGCAACCTGG TCCATGGCTT	8760
TGGAAATATA GCCTTCATAC TTGATTTCTG TTTCAATCAA TTCGATAATC TTGTCATCCA	8820
AGTCTTCTGC AGCTGGTCCG ATGAAGGCCA CCACATCTTG GTAAGAAACT TCTGGACGGC	8880
GAAGGAATTC CTTGGCTGTC ACTGCATCGG TCAAGGGTTT GAAGCCCATC TCCTCAACCT	8940
TGGCATTGGT TTCCTTGACT GGCTTGAGTT TGATACTGTC TAGGCGCTTC ATCTCATTAT	9000
CAAATTGATT TTTCTTGATT TCAAAACGAG CCCAGCGTTC ATCGTCCACA AGGCCAATCT	9060
CGCGTCCCAT CTCAGTCAAG CGCATATCAG CATTGTCTATG ACGAAGAATG AGACGGTATT	9120
CAGCACGACT GGTCAAGAGA CCGTAGGGTT CAATGGTTCC CTTGGTCACC AAGTCGTGCA	9180
TCATCACCCC GATATAACCA TCACTGCGCT TCAAAATCAA TTCAGGCTTG CCTTGGATTT	9240
TCAGAGCCGC ATTGATACCC GCGATAATCC CTTGGCCTGC TGCCTCTTCG TAACCTGATG	9300
TTCCATTTGT CTGACCAGCA GTGAAGAGAC CTGAGATTTT CTTGGTTTCC AAAGTCGCAC	9360
GCAACTGATG AGGCAAGACC ATATCATACT CAATAGCATA ACCTGTCCGC ATCATCTCTG	9420
CATTTTCCAA ACCTTTGATG GAATGCACCA AGTCACGCTG GACATCCTCA GGCAGACTGG	9480
TTGAAAGTCC TTGCACATAG ACTTCCTCAG TATTGCGCCC TTCTGGCTCA AGGAAGAGTT	9540
GGTGACGTTT CTTGTCCGCA AAGCGCACAA TCTTGTCTTC AATCGACGGA CAGTAACGAG	9600
GCCCCACTCC CTTGACCACA CCTGTAAACA TAGGCGCACG GTGGAGGTTG TTTTGGATAA	9660
TCTCATGACT GGTACCATTG GTATAGGTCA ACCAGCATGG TACTTGGTCC TTGACATAAT	9720

1219

CCTCATCAGC TGAAGTGTAT GAGAAATGAT TAGGCACTTC GTCTCCTGGC TGAATTTCTG	9780
TCACATCGTA ATTGATAGAA GAAGCCTTGA CACGTGGAGG GGTTCCTGTC TTGAAACGAC	9840
CGATTTTCGAG ACCCAGTTCC TTGAGATTGT CAGCTAGGTT AATAGAAGCC AAGCTGTGGT	9900
TAGGACCTGA TGAGTACTTG AGGTCTCCGA TGATAATTTC CCCACGGAGA GCAGTCCCTG	9960
TCGTCACAAT AACAGCCTTA GCAGCATATT CTTGATGGGT GGCTGTACGC ACACCGACAA	10020
CCTTGCCATC TTCCACCAAA ATCTCATCAA TCATGGTTTG ACGAAGGGTC AGATTTTCTT	10080
GGTTTTCAAC CGTCTTGGCG ATCTCCTTAG AGTAAAGTTC CTTGTCAGCC TGCGCACGAA	10140
GGGCACGGAC AGCTGGCCCC TTCCCTGTGT TTAGCATCTT CATCTGGATG TAAGTCTTGT	10200
CAATGGTTTT GGCCATCTCG CCACCGAGGG CATCGACTTC ACGCACCACA ATCCCTTGG	10260
CAGAACCACC GATAGAGGGA TTACAAGGCA TGAAAGCCAG CATTTCAATA TTGATGGTCG	10320
CAAGCAGGAC CTTACAGCCC ATACGGCTAG CGGCCAAGGA AGCCTCAACC CCAGCGTGTC	10380
CCGCACCAAT TACAATAATA TCGTATTCTT CAGTAAAATG ATAAGTCATG TTTCTCTCCT	10440
ATTCTCAAG ATGAATGTGT CTTAGTTGGC CTTCCCAATC TGGTAGGGCT GTTTTTAAAA	10500
AGACTGGAAC TAGCTGGATA TTCTGGAGCT TATCCAAGTC AATCCACTCA CAGGGCTGCC	10560
TTTTCTCATC TTCCTGCATG GTCAACGGGG CATCTTCAAG CAAATCCACC AGATAATGAA	10620
ACTCGATATT GTGATAGGAA ACGCCGTCCA CTTCAAAACG ATTTTCAACC ACAAAGCTA	10680
GCTGCCCAGC TTGAGCTTTG ACACCCAGTT CTTCTTCAC TTCACGGACT ACCGCGTCTT	10740
CCGTGCTTTC ATTGACTTGA ATCGCACCTC CAATAGTGTA ATACTTGCCC TTGTCTTTGG	10800
TAACTAGAAG CTTGTGATTT TGGACAATCA AGGCTGTAGC CCGAACACCA AAAACCGTAT	10860
TGTCTACTTT TGTCCGAAAG TCTTGTTGAG TCATTCTTGT CCTTTCCCTT AAACGACACA	10920
AAAACAGTCA AAACTACAAA GAAGTGCAGG ACAAAAAAGC CTGCAACATC CAGG	10974

(2) INFORMATION FOR SEQ ID NO: 215:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 987 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 215:

CCCGTTATGA TTATGGATAG CGCTTTCAAA TTTTAAACT CCTATCCCAT CCTTTATCT	60
ATATAATAAG TGAAAATATA ATAAGTGTCA AGTAACTGAA GTGAATTTTA TAAAAAATT	120

1220

ACAAGCCAAA TTTGTAAAGT TTACACTAAG CCGCTAGgCA ATCGTCTATC AGAATATCCG	180
TTTATTTGTC AATAATCCGA GAAAATCTTG CAACGCTTAG AAGTCTATAA AAACATCAAA	240
CATTTATATG ACTTGCGAAT AGCAATCCTG CTAAACCTTT CCACACTCTA TCTATACAAT	300
CAAGATAAAA ACATGTGTAA GCAAATCTGC TACACTTTAC TGGAGGACGC CAAGAATAAG	360
AAAAGCTACG ATAGGCTTGC TATCTGCTAT GTCCGTATTG GGATTTGTAC AGACGATTCT	420
AAACTTATCC AAAAAGGGTT CTCCCTTCTG GAGCTGACCG AGGAAACTTC TATGCTGTCT	480
CATCTCAAAA AAGAAGTAGA GACCCATTAT CAACCAAAGA AATTATAAAA AAAGTCGAGG	540
GAGCTCCTCG ACCTTTTCAT AGAATCGCCG AACGATTTAA CGAGAAAGTA TGACTTTTAC	600
GTTTATCCCA ACTCAATTAT GACATTTTTT TCAAAAGTCA ATATATCTCA CTTTTTCAAC	660
GACAAGAAAG AGGCTGATAA TCTACCAACC TCTTATTCTG AACCCATCAC TCCATCACTT	720
TTTAGCTTCA TTCGCTTTCT TAGCGACTGC AATCTGGTAT TCGACTTGGT CATTTCCCTT	780
ACCGGTACAA CCATGAGCAA TTGTAGTCGC TCCTATCTGA TCGCTATTT CAACCAATTT	840
TTTAGAAATC AGAGGGCGGC TCAAGGCAGA TACCAAGAGA TACTTTTGTT CATAATAGGC	900
ATGTGACTGA TGAGCCACTA GCACATAATC TGTAGCAAAT TCGTCCTTAA CATCAATGAC	960
ATAAGATTCT ACTGCCCAAA CCTTAAG	987

## (2) INFORMATION FOR SEQ ID NO: 216:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2651 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 216:

CTGGGTCCTTG TTCATAGTAG GTGTGGTtCT TTTTTTCGAG TGAGCCCAT AGCTTTGAGC	60
GCATAGTGGG TGGTAGTTGG ATGACAGCCA AAGTCAGAAG CTATTTCAGT CAAATAAGCA	120
TCTGGATTGT CAGTAAGATA GTTTTAAAGT CTATCTCTAT CAACTTTTCT TGGTTTGT	180
CCTTTTACTT GGTGGTTTAG CTCTCCTGTT TTCTCTTTTA GCTTTAACCA GCCATAAATG	240
GTATTACGTG AGATTTGGAA AACGTGTGAT GCTTCTGTTA TACTACCTAT TCGCTCACAA	300
TAAGAGAGAA CTTTTTACG AAAATCTATT GAATATGCCA TAAGAAGATT ATACCACATT	360
GTGTACTATT TTTGGTTCAT TTTACTATAT TTTATAAGTT ATAGTGTAGC ATTCCAACCT	420
CAAAGCACTA TAAAGTAAAT TGAAACAAGA ACAATACAAA CAATTCTCGT AAACGGATTG	480
CAACCACAAA AAAGCAAGCA TTCACAAGAA TACTTACCTA TCATGGGAGG AACACCGTT	540

1221

CCTCTTTTTT	ATTACTAAAA	TTCAAAGAAT	TCCAATGCTT	TTTTCAAGAG	CAAATCCGTA	600
TATTCTGGAT	CTTCTGGGCG	TACTTCTATT	TCCCGCTGAA	CTTTTCCAA	ATCATCTGTA	660
ATCACTCCAT	CTACTCCTAA	GTGAAGAGAT	TTGCTGATAG	CTTCTGAATC	ATTGACAGTC	720
CAGACATAAA	GTTTCTGATC	CGTTGTCCAT	AGTTTGCTTA	CAAAATATTC	ATCCAAGGTT	780
GAGTACTCCA	TAGTATATCC	TGTCGCTCTT	GTTTTAGGAA	AGACAGAATT	GTAGGGCATG	840
ATGAAATAAA	CTGGTAGTTC	GGCATCATAC	TGTCTTACTT	TTTCGACAAC	ATGGTAGTCT	900
AAAGACTGGA	TTTGATGTCC	ATAAATCTTG	AGCTTTGCAG	CATAACGGGC	TAAAAAGCGG	960
TTCATCATGT	CTGGACTATC	TTTTTTACTG	GTTTTAATTT	CAATTAGTAA	TTTTTGACCA	1020
AGTTCGTTGG	CTCGACTGAG	ATAATCTTCA	AAGCTTGAAA	TTTTAGTCTG	GTAGCCATTT	1080
TCAAAAATAT	CAATCCCTTT	AAGCTCCTCC	AAGTTTAAGT	CTTGAGGACT	TTTATTGATA	1140
CCTGCTAGAT	TTTTCAAGTT	AGCATCATGC	ATCATGACAA	ACTGCCCATC	TTTTGTTTCC	1200
TGCACGTCGG	TCTCCACCAA	GTCTGGTTTG	AGTTGTGCTG	TAGTTTCCAA	GGACTCTACT	1260
GTATTTTGAA	TCCCATTGTC	ATTGGAAACC	CCTCGGTGAG	AAATAAGTTG	AGGTAGATGA	1320
ACCATGGGAG	CCTCCAGATA	AATATAACCT	TCTAAGGCAA	AGAAAAGACT	GGCACAAGTC	1380
ATGACACCCC	ATCGCACCAT	GTGATCTTTT	TCTCTCCTAG	GAAGCATATC	CAGCTCCTTT	1440
CCTGTCAAAA	ATGAAACAAA	TTTAACCAAA	AAATAAGTCA	GAGCCATATA	ATAGAGATTT	1500
TTAATCACGA	CAAAATTCAA	AATACCAAGA	ATCAGAGACT	CTCTCTGAGT	GATATCATCT	1560
ACCAAAGTTT	GAGCCAATAA	TAAAGGAATC	AAAGGAAGAT	AATAATAATA	ATGTGCTTTG	1620
AGCAAGATGT	AAAATAAATT	CCAAGCATAA	AAAGTAACTC	TCTTCTTGGT	TTTCTCCAAG	1680
CTAAACATCA	CTGCTTCTCG	AACAGTCAGC	TGATCATATA	CAATCTTCGG	AAGGGCAAAC	1740
ATCAATCTGA	CAGAGACATA	GAGAAAGATA	AGAGATAGAA	GTAGGATGCT	CAGCCACCAC	1800
ATCCAATATC	TATCTTCTAA	ATAAGCTTGG	ATAAACTCTG	GAATGACGAT	TTTATTAAGA	1860
TAATAAATCT	TCAGCATTTT	CCGTATAAAA	GGAAACAGCA	TAGCTATATA	GAAAAAGATA	1920
AACAAGGCTT	TAGCGCAAGT	TAGCTTTTTC	ATAAATCCAA	AACTTTCATG	GAAAACCTTG	1980
CGGATATACT	CAATTAGCCT	TCGCTTTTCA	TTATAGAGGA	GATGACGAGC	ACCAATAAAG	2040
AGGAGTCCTA	TTTGAAAATA	AGCAACCAGA	AGGTTAATTA	CAATCAAGGC	TAAAAAAGCT	2100
AGACTAATCA	ATGGAGAATG	AGTAAGGATG	GCTAAGACAT	TGTTATAGGA	AATAAAAAGA	2160
TAACCTGTCT	GATCTAATAA	GAAGCTAGCC	AACCATGAAT	TGAATGGTAC	CCACAAATAC	2220
TCCACTATCA	TAAAAATCAA	GAAAAATAGA	AAGAGGATTT	TATCAAGATC	GAGGTAATC	2280

1222

TGTTTAAGAC CCAATTTTTT AGGTTTTTCA GGTTCATAG GCACTCCTAG TCAAATAATT	2340
GAGACAAGTC CAAGCCACCA AAAGGATTGT TTGATAAGCT ACTTTCTGTC TCTAACAATT	2400
CCCTAGCTTG ATCCGACTCT AAGAAGGATT CGTAAACACG CGCCGTCATC CGAGCATCCT	2460
CTAAACTATT ATGAGACTGA CCTTGAAATC CAAGAAATGA GGCAACAGTT TGCAATTTGA	2520
GATTGGCAAT ACCATGTAAA TCTGAACTCC GACGTTCAAA AGCTTCATCA TACAAATCCA	2580
CCTTGTA CTG TTGGCTATAG TCTAAACCAT GCTCTGCTAA AATAGGTAAA TCACTTTTAG	2640
CAGCATTGTA G	2651

(2) INFORMATION FOR SEQ ID NO: 217:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 5638 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 217:

CGTTATAATA AACTTGTGAA AAAATTAACA AAGGATATCG TTCCTTGAAA GCTATGGAGG	60
AAAATATGGC TGATAAAAAA ACTGTGACAC CAGAGGAAAA GAAACTCGTT GCTGAAAAAC	120
ACGTAGATGA GTTGGTTCAA AAAGCTCTAG TTGCCCTTGA AGAAATGCGT AAATTGGATC	180
AAGAACAAGT TGA CTACATC GTTGCCAAAG CATCAGTAGC AGCTTTGGAT GCCCACGGAG	240
AATTGGCTTT ACATGCCTTT GAAGAAACAG GACGTGGTGT ATTTGAAGAC AAAGCAACTA	300
AGAACTTGTT TGCCTGTGAA CACGTAGTAA ACAACATGCG CCACACTAAG ACAGTTGGCG	360
TTATCGAAGA AGACGATGTA ACAGGATTGA CTCTTATTGC TGAACCAGTT GGTGTTGTTT	420
GTGGTATTAC TCCAACAACA AACCCACAT CAACAGCAAT CTTCAAATCA TTGATTTTCA	480
TGAAGACACG TAACCCAATC GTCTTTGCCT TCCATCCATC AGCACAAGAA TCATCTGCTC	540
ATGCAGCTCG TATCGTCCGC GATGCAGCTA TCGCAGCTGG TGCTCCTGAA AACTGTGTGC	600
AATGGATTAC TCAACCATCT ATGGAAGCAA CAAGTGCCTT TATGAACCAC GAAGGTGTTG	660
CGACAATCCT TGCAACAGGT GGTAAATGCCA TGGTTAAGGC GGCTTATTCA TGTGGTAAAC	720
CAGCTCTTGG GGTAGGTGCC GGAAACGTT CAGCTTATGT TGAAAAATCA GCAAACATTC	780
GTCAAGCAGC ACACGATATC GTCATGTCTA AATCATTTGA TAACGGTATG GTCTGTGCAT	840
CTGAACAAGC AGTTATCATT GATAAAGAAA TTTACGATGA ATTTGTAGCA GAGTTCAAAT	900
CTTACCACAC TTACTTTGTA AACAAAAAAG AAAAAGCTCT TCTGAAGAG TTCTGCTTCG	960
GGTCAAAGC AAACAGCAAA AACTGTGCTG GTGCAAAATT GAACGCTGAC ATCGTTGGTA	1020

1223

AACCAGCAAC TTGGATTGCA GAACAAGCAG GATTACAGT TCCAGAAGGA ACAAACATTC	1080
TTGCTGCAGA ATGTAAAGAA GTTGGCGAAA ATGAGCCATT GACTCGTGAA AAATTGTCAC	1140
CAGTTATTGC AGTTTTGAAA TCTGAAAGCC GTGAAGATGG TATTACTAAG GCTCGTCAAA	1200
TGGTTGAATT TAACGGTCTT GGACACTCAG CAGCTATCCA CACAGCTGAC GAAGAATTGA	1260
CTAAAGAATT TGGTAAAGCT GTTAAAGCTA TTCGTGTTAT CTGTAAGTCA CCTTCTACTT	1320
TTGGTGGTAT CGGGGACGTT TACAATGCCT TCTTGCCATC ATTGACACTT GGATGTGGTT	1380
CTTACGGACG CAACTCAGTT GGGGATAACG TTAGTGCCAT TAACCTCTTG AATATCAAAA	1440
AAGTCGGAAG ACGGAGAAAT AACATGCAAT GGATGAACT TCCTTCAAAA ACATACTTTG	1500
AACGTGATTC AATTCAATAC CTTCAAAAAT GTCGTGACGT TGAACGTGTC ATGATCGTTA	1560
CTGACCATGC CATGGTAGAG CTTGGTTTCC TTGATCGTAT CATCGAACAA CTGGACCTTC	1620
GTGCGAATAA GGTGTGTTTAC CAAATCTTTG CGGATGTAGA ACCGGATCCA GATATCACAA	1680
CTGTAAACCG TGGTACTGAG ATTATGCGTG CCTTCAAACC AGATACCATC ATCGCACTCG	1740
GTGGTGGGTC TCCAATGGAT GCTGCCAAAG TAATGTGGCT CTTCTACGAG CAACCAGAAG	1800
TGGACTCCG TGACCTTGTC CAAAAATTCA TGGATATCCG TAAACGTGCC TTCAAGTTCC	1860
CATTGCTTGG TAAGAAGACT AAATTCATCG CGATTCCAAC TACATCTGGT ACAGGATCTG	1920
AAGTAACACC ATTTGCCGTT ATCTCTGATA AAGCAAACAA CCGTAAATAC CCAATCGCTG	1980
ACTACTCATT GACACCAACT GTGGCAATCG TAGATCCTGC TTTGGTATTG ACAGTTCCAG	2040
GATTTGTTGC TGCTGATACT GGTATGGACG TATTGACTCA CGCGACAGAA GCATACGTAT	2100
CACAAATGGC TAGTGACTAC ACTGATGGTT TAGCACTTCA AGCCATTAAA TTGGTCTTTG	2160
AAAATCTCGA AAGCTCAGTT AAGAATGCAG ACTTCCACTC ACGTGAGAAA ATGCATAACG	2220
CTTCAACAAT CGCTGGTATG GCCTTTGCCA ATGCCTTCCT AGGTATTCT CACTCAATGG	2280
CCCATAGAT TGGTGCGCAA TTCCACACAA TCCACGGTCG TACAAATGCT ATCTTGCTTC	2340
CATACGTTAT CCGTTACAAC GGTACACGTC CAGCTAAGAC AGCAACATGG CCTAAGTACA	2400
ACTACTACCG TGCAGATGAA AAATACCAAG ATATCGCACG CATGCTTGGA CTTCCAGCTT	2460
CTACTCCAGA AGAAGGGGTT GAATCTTACG CAAAAGCTGT CTACGAACTC GGTGAACGTA	2520
TTGGGATCCA AATGAATTTT AGAGACCAAG GAATTGACGA AAAAGAATGG AAAGAACATT	2580
CTCGTAAATT AGCCTTCCTG GCTTATGAAG ACCAATGTTT ACCAGCTAAC CCACGTCTTC	2640
CAATGGTAGA CCATATGCAA GAAATCATCG AAGATGCATA CTATGGCTAC AAAGAAAGAC	2700
CAGGACGCCG TAAATAATTG TTTATCAGTC TAGAAGCAAG AAAAAAATC AATTGAGGG	2760

1224

AAAGATCCAG TAATTTTCT ATGATAAAAG GCATCCTATC AAGGTTTTTG AACACCTGAT	2820
AGGATGCCTT TTTATGATAT TGAGGCCTTT TTGCCCTTTT TGAAAACTA GAATAGAAAC	2880
AAAAATATATA ATAGATTGAA ACTAGAATAG TACATATCTG CTTCTAAAAC ATTGTTAGAA	2940
TTGATTTGA CTGTCCTGAT CGATTTGTCC TGTCTTATT TCATTTTGAT ATATAAAAAA	3000
TATAGTATAG TAGACTGAAT CTAAAATAGT ACGAAACAAT TGCTAAAACA TTTATAGAAA	3060
TTAATTTTAC TTTTCTGATA GAGTTGTCA CATCTTATTT CAATTCATA TAGTTTAATT	3120
TAAGAGTAGT ATTTACTAAG GCCCAATTAA AATCAAAGAG CAACTAGAA AACGAGTGCC	3180
ATTCAGCTCA AAACACTGAT TTGAGATTGC AGATAAGACT AGCCCCCTCA TTAACAGATT	3240
TACGATAAAA CGATGACAAG GTGTGTTGCT TTTTGATTTC TAAAGAGTAT AATGATAGAT	3300
CTCTATAAAA TAAGTCCGAA GGAAATGAGC TTTTATAGTC CTTTCGTTTT AAAATACTAT	3360
CTCAGATATT CTTATATCGA CAAGAAGTTT TTGAGTCATT CCCTCATCAT ACATATTAATA	3420
TAAATAGTGG CTCATTCAAT TTTTCACTAG AATAATAAGC TAGTATAGTA AACTGAAATA	3480
AGATATAAAC AAATAAATTG GAGCTTAACA TCCATTTCCT GCAATTTTTT AGAACTACA	3540
GTGGACTATT CTAGATTCAA CATATTATAA AAAGTAGAGT AAAAGAAAAG GATTGGATCT	3600
TGTGTAATGC AGGATCCAAT CCTTCAATC ATTTTGTTCA ACTTTTGAGG GTTCCTACAA	3660
TGTAGTCGTC ATTAATAAAG ACAGATGGGA ATGACAGTGT TCCTATTTAT TTTGATAGAG	3720
ATCGATGAAT TCTTTAGATA GCAACTGAAT AATCTCTGTT GAAGCCATTT GGTCTTCTGC	3780
ATGCATAAAT AGCAAGGAGA ATCCTATTTT TTCTCCAGTA GCTTCTTTTT GTATGAGATT	3840
AGAGTGAATC TTGTGCGCTT CTAATAAGGA GTCTCCGCT TCTTCAACTT TAATTTTCGC	3900
TTCTTTTAAA TTTCTGCCT TAGCTAGTTG GATGGCTTCA ATAAAGGATG ATTTGGCTGC	3960
TCCACTATTG GCAATGAGCT GAAAACAGAT ATATTCCATT TCTTCTGTCA TCTTATTTCT	4020
CCTATCCATG CAAGTGCTTG TTCCAGAACT TTTGCTCCAT TCATCATTCC GTAATCCCGC	4080
ATATCAATGG TATCTACAGG GATATTTCTT GCAATTTCTT TCACAGCAAG TAACTCATAA	4140
CGAATTTGTG GCCCAATTAG AATGACATCT GCTTCATGGA TATTCTTTTT AGCTTCTGTC	4200
ATTGATTTTG CTTGGATAGA GATTCAATC CCACGTTTCT TCGCACTTTG TTGCATTTTT	4260
TTAACAAGCA TACTTGTCGA CATTCCCGCA TTACATACTA ATAAAATTTG TTTTATAATC	4320
TTAACCTTCC ATTTCTTGTT CAACAACCTT GTCATTAATC TTGATAAATG GAATGTATAG	4380
AAGAACTCCA AGTGCAAAGA TGATGAATTG AACTAGAACT GCTCTCACGT CCCCTGCTGT	4440
TGCTAACCAT GCATTTAAGA ATACTGGTGT AGTCCAAGGA ACTTGTATAA ATGCAGGACT	4500
CATGAATTCT GTAAGTGTG CTAAGTAGCT GATTAATAA CCAAGGACTG GAACTGTGAT	4560



1225

AAATGGAATA GCTAATGAAA TGTATAAAC GATTGGGTAA CCGAATAATA CTGGTTCATT	4620
GATATTGAAG ATACCAGGTC CAAAAGATAA TTTAGCCACG TTTTGTAGAGA CAGCATTGCG	4680
ACTCACTAAG AATGTTGCTA TTAATAAACA TAATGTAGAT CCACTACCAC CCATTAAAGC	4740
GAATGTTTGT ATTTGTGATA GGTGATGAT GTGTGGAATG GCTTGTCCAT TATTTGCTGC	4800
ACTGATGTTT TCAGTAATGT TAATTAATAG TAATGGTCTT AGGATGGCAC TGTAATAAC	4860
TGCTTGGTGA ATACCAAATA GCCATAACAT ATTTCTAAA GAGTAAATAA TAATGACCCC	4920
GATTAAGCTT GTACCAATAT GACGAATTGG TTCTTGAATA AAGATTGTAA TGATTGAGAT	4980
TAAGTTCATT CCAGTTATAT TGAATAATAA TGCTGAAACA ACCCCAAATA AGGAGATGAC	5040
GGTCATGACT GGAAGTAATA CGCTAAATGA TCTACTAACA GCTGGTGGAA TATTTTCACC	5100
AAGGTTTATT TGTAAGCTT TAACGTTTGA TAATTCAATG AATAATTCTG TTGCAATAAT	5160
CGTACGATAA CCCCAGCGAA CATTGCGCCT GTACCTGTGT TGTGTAATGA AAGAACACCT	5220
GAAATGTTTA CCGCATCTTT TGCTCCGTCA GGAACACAG AACTGTATT TGGCATCATC	5280
ACAATTAAG AACTAATGA TAGCATTGAT GCTGCTAACG GGTTCGAA ATCTCTGTTT	5340
TTAGCTAAGA AATAACCAAC CATTACAGCA ATAATCATAC CTGAAATACT TAAAGTACCG	5400
TTTGCAATTG TTATTCCTCA ATATTGGAAT CTGTGTAATG TATCCCTTGG GAAAATCCAC	5460
TTAAATACCG TGTGTTCAA AAGAACGATT AAACCTGCCA AAATATATAA TGGCATTACT	5520
GTTACGAATG CATCTCTTAG GGTTCCTAAA TGAATTTGGT TCCCTAGTTT ACCAGCAAAG	5580
GATGGCAAAA AAATTTTTTT GGGGGGGGGG GTTATTAAAC CCCCCTTTTT AAAAAAAA	5638

(2) INFORMATION FOR SEQ ID NO: 218:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4745 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 218:

CCGGAAGCTG TTGCCCTTGG AACTCCAAAT GAAGAAACAG CCTTTGTCTT GAACTATTTT	60
GGTGTGGAAG CACCACGTGT TATCACTTCT GCCAAAGCAG AGGGGGCAGA GCAAGTTATC	120
TTGACTGACC ACAATGAATT CCAACAATCT GTATCAGATA TCGCTGAAGT AGAAGTTTAC	180
GGTGTGTAG ACCACCACCG TGTGGCTAAC TTTGAACTG CAAGCCCACT TTACATGCGT	240
TTGGAGCCAG TTGGATCAGC GTCTTCAATC GTTTACCGTA TGTCAAAGA ACATGGTGTA	300

1226

GCTGTGCCTA AAGAGATTGC AGGTTTGATG CTTTCAGGTT TGATTTGAGA TACCCTTCTT	360
TTGAAATCAC CAACAACACA CCCAACAGAT AAAATCATTG CTCCTGAATT GGCTGAATTG	420
GCTGGTGTGA ACTTGGAAGA ATATGGTTTG GCAATGTTGA AAGCTGGTAC CAACTTGGCT	480
AGCAAATCTG CTGAAGAATT GATTGATATC GATGCTAAGA CTTTGAACCT CAACGGAAAT	540
AATGTCCGTG TTGCCCAAGT GAACACAGTT GACATCGCTG AAGTTTGGGA ACGCCAAGCA	600
GAAATTGAAG CTGCAATGCA AGCTGCCAAC GAATCAAACG GCTACTCTGA CTTTGTCTTG	660
ATGATTACAG ATATCGTCAA CTCAACTCA GAAATCTTGG CTCTGGTGC CAATATGGAC	720
AAGGTCGAAG CGGCTTTCAA CTTCAAACCTT GAAACAATC ATGCCTTCCT TGCTGGTGCC	780
GTTTCACGTA AGAAACAAGT GGTACCTCAA TTGACTGAAA GCTTTAATGC GTAAGATTTT	840
GGGTGTCAGC TCAAAATCGG AAAGTCTAGT TTGCCTTATA TCGCAAGGAG TTTCGGCTCC	900
TTTTTTCTAG GAGTGAAGTA TGTTAGAAAA TGGCGATTTG ATTTTGTGA GAGATGGGTC	960
AGACATGGGA CAGGCCATCC AGACTTCCAC AGGTAACAT AGCCATGTTG CCATTTATTT	1020
GGATGGGATG ATTTATCATG CTAGTGGACA GGCTGGTGT GTCTGTCAAG AACCGGCAGA	1080
CTTCTTTGAG TCCAATCATT TATACGACCT CTATGTTTAC CCAGAAATGG ATATCCAGTC	1140
GGTGAAGGAA AGAGCTTGCA AACATCTTGG AGCACCTAC AATGCTTCTT TCTATCCAGA	1200
TGCAGCTGGT TTTTACTGCT CCCAGTATAT AGCAGAAATC CTACCTATTT TTGAACTAT	1260
TCCTATGAAA TTTGGAGWTG GGGAGCAGGA GATTAGTGAT TTTTGGAGGG AGTATTACAT	1320
AGAACTAGGT CTGCCTGTTT CTCTGAACCA AGCTGGTACC AATCCTAGTC AGTTGGCAGC	1380
ATCGCCTCTG TTACAATGTA AAGAAAGGAA TCTTCATGAT TCAGATTTTT AATCCATCTC	1440
GTTTGACGAG ACAGCCATTT TTGGAGAATT GATCCGCTAT CTGGATCAGT ATGAGGATGT	1500
GATTCTACGG GAAATTAAGG CTCAATTTCC AGATGTTGCA GTTGATAAAC TCATGGAAGA	1560
GTATATAAAG GCAGGCTTGA TTCTACGTGA AAATAAGCGC TATTACCTCA ATTTTCCTAC	1620
GCTTGAATCA CTTGATAGTC TTGAACTGGA TCAAGAGATT TTTGTCAGAG AAGCTAGTCC	1680
GGTCTATCAA GCCTTGTTGG AGCAGAGTTT TGAGACGGAA TTGCGCAATC AAATCAATGC	1740
AGCTATTTTA GTTGAAAAGA CGGACTTTGC GCGCATTAAT ATGACCCTGT CCAATTATTT	1800
TTACAAGGTC AAACAGCAGT ATCCTTTGAC AGAAAAACAG CAGGAGCTCT ATGACATTTT	1860
AGGAGATGTT AATCCTGAGT ATGCCCTCAA GTATATGACG GCTTTTTTGT TGAAATTTCT	1920
CAAAAAAGAC CAGCTTATGC AGAAATGCCG TGATATCTTT GTGGACAGTT AGGTTGTCTT	1980
AGGCTATATT GTGCAAAATG AAGATGGAAA GTATGAGTTG GCTATCGATT TTGATAAGGA	2040
GAGGTAACT TTCTACTTAG CGTGATTTCT TGTTCCTGAG TACATTGTTT GACTTTCCTT	2100

1227

AGTATTCGGT ATAAACTATA TGTAACCGGT AACACATATC GGAATAAACT AAAGGAGACA	2160
ATCATATGTC ACTTGAAAAC AAATTGGAAC AAGCAACAGG CGCTGTCAA GAAGGTTTTG	2220
GTAAAGTTAC TGGAGACAGC AAGACAGAAC TTGAAGGAGC TGTGAAAAA ACAGTTGCTA	2280
AGGCAAAAGA CGTTGTAGAA GACGCAAAAG GTGCTGTAGA AGGTGCCGTT GAAGGTTTGA	2340
AAAACGTTTT TACTAAAGAA TAGGAAAAA TCAAGGGTTT CATTTTCCCT TGATTTTTTC	2400
TATTCTTATA AATAATTTTC TCGCAGCGGT GTATCTCTG GGTAGGATTC TTTCTTGCCC	2460
TGGATGATTT GGTAACAATC GGCTCCCTTA CCCGCAATAA TAACTGCATC TAATTCGTGA	2520
TTTGTGATAG CCATTGCCGC CTTGATGGCT TCTTGGCGAT CCGCAATCTT TTCAACAGGA	2580
TGATTGATGT AGCTACTAAT TTCATCTGCA ATGGCCATTG GGTCTTCATA GTTAGGGTCA	2640
TCAGCAGTCA GAAAGACTTG AATCTCAGGG TGTGTATGA GGAGGAGGCC AAAGTCCTTA	2700
CGACGACTTT CTCCCTTGTT TCCTGTTGAT CCCAGAACCA GAGCAATCTT TCCGGTTTGA	2760
TGAGTTTCAA CCACATTGAT GAGTTTTTTC AGACTATCCC CATGTGGGC ATAGTCGATG	2820
AAGACCTTGG CTCCATTTTT CTGAGTGAGG ACTTCCATAC GACCAGGAAC GCGGGTTGCA	2880
GCGATGCCTT TTTTGATGTC CTCAAGACTT GCTCCGAGAC GGAGACAAGC AAGTCCAGCA	2940
GCAACTGCAT TTTCTTGTT GAAGTTGCCA ATGAGTTGAA TATCATAATC TCCAGCGAGT	3000
TTACCCGTAG CTGAAAAGCT AAAGGCTTTG GAATTCTCGA TTTGGTTATC AAATTGGCTA	3060
CCATAGAAAT CATGGTCTTG ATCTTCAACC TGTCTTTCA AGACTGAGAA GTGGTCCATG	3120
TCACTGTTAA TGATGACTGC TCGGCTCTT TCCATCAAGA GACGCTTGTG GTAGAAATAG	3180
TCTTCAAAGC TAGGGTGTTT AATCGGGCCG ATATGGTCTG GGCTGATATT TAGGAAAACT	3240
CCCACATCAA AGGTTAGACC ATAGACACGT TTGACCAGAT AGGCTTGACT GGAGACTTCC	3300
ATGATGAGGT GGGTACGGTC ATTTTGCA CA GCTGATTCA TCATGTCAA GAGGTCAATA	3360
CTCTCAGGGG TTGTCAACGC TGACTTAAAG AAAGTCTCGC CATCAAGAGT TGTGTTTCATG	3420
GTCGACAACA TAGCAGGTCT ATGCCCTTGA GATAAGATGT TATAGGCGAA ATAGGCTGCT	3480
GTTGTCTTAC CCTTAGTACC AGTAAAGGCA AGGAGTTTGA GTTTTTCTG TGGATTACCA	3540
TAGAACTCCA TGGCAATCAA ACTCATGGCT TTCTTTATAT CGTTCACAAT GATGACAGGG	3600
ATACCGACTT CGTAGTCTT TTCAGCTACA TACCAAGCTA ATCCTTGTGT TATAGCAGAA	3660
AGAAGGTATT CTTTTTAAA GGCAGCCCT TTTGCGAAAA AAAGAGTGTC TTCTGTACT	3720
TTTCGGCTGT CGTAGCTGAT GCTATCAAAA ATAACCTTGC TGTAGTTGTA GTGGTAATGA	3780
CCTTGGTCAA TAATTCGCG AAAAAGGCCA TCTTTCTTTA AAATATCTAA TACGGTTTCA	3840

1228

ATCTTAATCA TACTTTCTAT TGTAACCGA AAGTCGTAAA TTTACAAGTA ACAAGGAAAA	3900
GTTTATAATG GAAGATAAGG AGTTTTTCCT AGTTATCAAA ATTGAATGAG GAATCTATGT	3960
CGCACGAAAA CAATCACCAG CAGGCCCAGA TGTTACGGGG GACTGCTTGG CTAACGGCTA	4020
GTAACCTTAT CAGTCGCCTA CTCGGGGCTG TTTACATTAT CCCTTGGTAC ATCTGGATGG	4080
GGGCTTATGC AGCTAAGGCA AATGGTCTCT TTACCATGGG TTACAATATC TATGCTTGGT	4140
TCTTGTTGGT TTCAACAGCG GGGATTCCAG TTGCGGTGGC CAAGCAAGTT GCCAAGTATA	4200
ATACCATGCG AGAAGAAGAG CATAGCTTTG CCCTGATTCTG GAGCTTCTTA GGCTTTATGA	4260
CAGGACTAGG CCTGGTTTTT GCTTTAGTCT TGTATGTCTT TGCTCCTTGG CTAGCAGACT	4320
TGTCTGGCGT GGGCAAAGAC TTGATCCCAA TCATGCAAAG CTTGGCTTGG GGAGTCTTGA	4380
TTTTCCCGTC TATGAGTGTT ATCCGAGGAT TTTTCCAAGG GATGAATAAC CTCAAACCCT	4440
ATGCCATGAG CCAAATTGCT GAGCAGGTCA TTCGTGTTAT CTGGATGCTC CTAGCAACCT	4500
TTATCATTAT GAAGCTCGGT TCAGGAGATT ATCTAGCAGC CGTTACCCAA TCAACCTTTG	4560
CTGCCTTTGT CGGTATGGTA GCCAGTTTTG CAGTCTTGAT TTATTTCTTT GCCCAAGAAG	4620
GTTCACTCAA AAGAATCTTT GAAACAGGAG ATAAGATTAA CAGTAAGCGT CTCTTGGTTG	4680
ATACCATTAA GGAAGCCATT CCTTTTATCC TGACAGGGTC TGCCATCCAG CTCTTCCAGA	4740
TTTTG	4745

## (2) INFORMATION FOR SEQ ID NO: 219:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1900 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 219:

CCTGATTGAC CTTATAATAA GGAACAAAAC ACAATGCACT ACCTTTTCAA CAAAAGAGTT	60
GCTGCTTGAT TAAACCATC ACACCAGTTA TACCATTTTG CTTCATACCC ATCTTGAGCT	120
AGGATACGAT CTTCTAAATC AAAACAGAG TAAATCTTTC TTTCCTCGCA AGCTTGCGCA	180
TAGAGATGAT ATAGTTCATC ACCACCATCT CTATCCCACT CAGCAGAAAT CGTATCCCGA	240
CCTGCCAATA AAGCCTGATA AGCCCTGTGA TGCCCATCTG TAATCAGCAA ACAATCTCCA	300
AAGGCAAGAA TACTGATTGG ATCGACTTGG ATTGTTTCTG CCGACTGGTA AAGCATCTGA	360
ATATCTTGCA ACTTCTTTTC TGATAAATAT AGTTGAGTCA GATGAAGATC TGCTATATTG	420
ACTTTCATTT CTTTCTCCTC AAGGGAATTC GATACTCACT TCTGTTTGCC TTAAATCGC	480

1229

CATTGGAAGC GGAgCTTGTC ATAAAAGGGA AACTCGATAA ACAGGACTCC CAAGCCCACA	540
CAGAGACTGG CAAGGACGTC TGATGGGTAA TGAACGCCA GATAGACTCT TGATACCAGC	600
ACACTGACTA GGTAGAGGCC AAGGACGATT TGTACGATTT TTCTCCAGAC CTGATCTTTA	660
ATCCGCTGAC TAAGAATAAC AATCAAAGTC CCTACCATCA GCGTTACAGC TAGAGAATGC	720
CCACTTGGGA AGGAAAATCC CTTCTCCTCC ACCAGATGTA AAATAGCTGG TCGTGGGCGC	780
TGGTAGATAT TTTTAAAGGT CACGATTAAA AGACCTGCCA AAGCCAGATT TCCCAGCATG	840
AAGAACTTT CTATCTTCCA TCGCTTACGA TAAAAGACAA AAGCTGTAAT GACAACCCAA	900
GTGATAATCA CTGGGATATC AATCAGACGT GTGAGGGCTC GAAAAAGAA AGTCAAATAA	960
TCTGGTAAGT CTCCTCGAAT GGCAGTCTGA ATCGATTGGT CAAAATTGAC CAACATTTCA	1020
GGGTAAAATT TGACCATGTA GCCAAGAATA ACGAAAAGTA AAAGGGCAAA ACTGCCCTTC	1080
ATTAAAAATG TTTGTTTATC TCTCATAATG TTTAAGGTT GGTTTCAAGA GAACATACAA	1140
CAACCAGAAT GAAACGGAAA AGATAACACC TTCAATCAAG TTAAGGTA ATACCATGGT	1200
CATTAGGTAG TTGGAAAGTC CCAAAATTTT TCCAATATCA AAGTTAGCAA ACTTAGCGTA	1260
CAAAGGAACA GCATAAACAT AGTTGAGAAC CAACATGGCC AAGGTTAAAC CAATAGTTCC	1320
AGCTAGAGAG CCTAGTAGGA AACGAAGGGT TGTCGGTTCC TTTTCCAAA TCAAAGCAAA	1380
TACGATGACA AAAACTCCCA AAGCTACGAT ATTTCATCGG AAACCAATGT AAGTATTCAC	1440
TCCTTGGCTG TTAAGAAGCA ATTTCAAGAG TGAGCGAAGC AAGAGCACTC CTAGAGmCsC	1500
AGGCAATCC ATGACCACCA GACCCACAAG GACTGGCAAG ATACTAAATT CGATCTTGAG	1560
GAAAGATGCC GCTGGTAAAA GCGGAAAGTC AAAGTACATC AGCACAAATG AGATGGCTGA	1620
TAGAATTGCA ATGGTCGAAA GTCGACGTGT GTTTGTCATA ACAGGTTCCCT CCAATTTTCT	1680
ATAAATCAG AAGAAGTTGG AAAGGATTCC TCTATCTATT CTCACTTTTT ATATCCCCAA	1740
AGTTCCCTCT TACTCTATTA AAGAAAAACA AAGCAAGTGG TTACAATCCG GCTATAAATC	1800
TATCAAAACA GACAAGGCTA TTCTTTCGTC TTCTCCCATC CAGACTATAC TGTCGGTTGT	1860
GGAATCTCAC CACATCACGT TGCCTCACG GACTTCTTTA	1900

(2) INFORMATION FOR SEQ ID NO: 220:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 4692 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

1230

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 220:

GGTTTTCCAG CAGGAGCTTC TCCTTTATCA GAATGACCAT CCCATCTGCT CACGATAGAT	60
GAATAATGAT ATTTTTTACC ATGATAGTAA TTTGAAAAAG CCTAACCACC TCCTGAACCT	120
TCTCCATATG TCCATACTCC TCCATCTGGA TATTATACAG CAGCTGATGC AGCTCCCAAT	180
AATGTAAAC TTGAAATAAG AGCTAGAGCA AGTAATCTAT GTTTTTTCGT TTTTCATTTA	240
TTTTTTCTTT CAAAAAAGC ACACCTTGAG CAACAATGCA ACAAATAAA TCCTCCTCTC	300
TCTTTTATTG AAACCGCTTT CTTATGTGAT AAGAATAACT TTTTATCAT TTGTTGTCAA	360
GGAAAAATC GAATTTTTTA GATATTTTAC TATATTACCT CTGTGAATAA TATTATATAG	420
TAGTTTTATT TCAAAATAAT ATGCAACCAG TACTAACCAA ATATAAAATA GATGCCATTA	480
ACGAATTTTA TTCAAGTTT TCCCATTCAT ACTATACAAG TAAAAGAGAT GGTGTTAACT	540
AAAAAGCAAT TCAAACTATT GTAAAATTCC TAGCAAAAAG AGAGCCGAAA CTCTCTTTTT	600
TATCTTCTTT TACTTTTTTT GACTGGCATG AGTGTGATGT CTCTAACACT AAAGTAAGCT	660
AGGATCAACA TGGCTATTGC TAGGAATATT TCTGTTGGTA ATTGAAAAAT TTTCAGAAAA	720
GATAGAACCA ATAAATCAA GAGTGCCACT AAAATACATA CCATAGCGAC GATATTGACA	780
GTCCCTTTAA TGCTTCTGG TGTGCAAAAT ACATAGAGTA GGAGCAGTAA AATTCCTAGG	840
ACTAAATAGA CCATCTTCT CTCTTCTAG CTCTTATTCA GCTGATTTTT TCTTCTGT	900
AGCTTTCTCA CGCTCTGCTT TGTTAAGGAT TTGTTTACGC AAACGGATAG ACTCAGGCGT	960
TACTTCCATG TACTCATCGT CGTTCAAGAA CTCAAGAGAC TCTTCAAGTG TCAAGATACG	1020
AGGCGTCTTG ATAACAGCTG TTTGGTCCTT AGTAGCTGAA CGAACGTTGG TCATTTGTTT	1080
TGCCTTCGTG ATGTTAACTG TCAAGTCATT TTCACGAGAG TTTTCACCGA TGATCATTC	1140
TTCATAAACC TCAGTACCTG GGTGACAAA GATCGTACCA CGTTCTTCGA TAGACATGAT	1200
TGAGTAAGTT GTAGCCTTAC CAGCATCGAT AGAAACAAGG GCACCACGGT GACGTCCACC	1260
AATTTCCCTT GGAATCAATG GCAAGTATTG GTCGAAGGTA TGGTTCATGA TACCGTAACC	1320
ACGAGTCATT GATAAGAACT CAGTTGAGTA TCCAATCAAA CCACGCGCTG GAACAAGGAA	1380
GACCAAACGA GTTTGACCAT TACCAGTTGA AATCATATCC AACATTTTAC CTTTACGTTT	1440
AGAAAGGCTT TGGATAACAG ACCCTTGGTA TTCTTCTGGA GTGTCGATTT GTACACGTTT	1500
AAATGGTTCA CATTTAATAC CGTCGATTTT TTTTACGATA ACTTCTGGAC GAGATACTTG	1560
AAGTTCATAG CCTTCACGAC GCATTGTTTC GATAAGGATT GACAAGTGCA ATTCTCCACG	1620
TCCTGAAACA GTCCATTTAT CTGGTGAATC AGTTGGGTCA ACACGAAGGG AAACGTCTGT	1680
TTGCAATTCT GCCTGCAAGC GTTCTTCCAC CTTACGAGAA GTTACCCATT TACCTTCTTT	1740

1231

ACCAGCAAAT GGTGAGTTGT TGACCAAGAA AGTCATTTGA AGAGTTGGCT CATCGATGTG	1800
TAGGATTGGA AGAGCTTCTA CTGCATCTGT CGGAGTGATG GTTTCACCGA CAAAGATGTC	1860
TTCCATACCT GAAACGGCAA TCAAGTCACC CGCTTTGGCT TCTTGGATTT CACGACGTTT	1920
CAAACCAAAG AAACCGAAGA GTTTTGTAAAC ACGGAAGTTT TTAGTTGTAC CGTCAAGTTT	1980
AGAAAGGGTA ACTTGGTCCC CAACCTTAAC TGTACCACGG AAGACACGAC CGATACCGAT	2040
ACGTCCAACG AAGTCATTGT AGTCCAAAAG TGACACTTGG AACTGCAAAG GCTCATCTGA	2100
GTTATCTACT GGAGCTGGGA TATGGTCGAT AATCGTGTCA AAGATTGGTG CCATAGTCGC	2160
TTCTTGGTCA GCTGGATCAT CTGACAATGA AGAAGTTCCG TTGATCGCTG AAGCATAAAC	2220
CACTGGGAAA TCAAGCTGGT CGTCATCTGC ACCAAGCTCG ATGAAAAGTT CCAAGACTTC	2280
ATCCACTACT TCTGCTGGAC GAGCTGATGG CTTATCGATT TTGTTAACAA CCACGATTGG	2340
GACAAGGTCT TGTCCAAGG CTTTTTCAA TACGAAACGA GTTTGTGGCA TGGTTCCTTC	2400
ATAGGCATCT ACGACCAAGA CAACACCGTC AACCATTTTC ATGATACGCT CAACTTCTCC	2460
ACCAAAGTCC GCGTGTCTG GTGTGTCCAT AATGTTGATA CGAGTTCCGT TGTAAGCAAC	2520
GGCAGTATTT TTAGCAAGGA TGGTAATTCC ACGCTCTTTT TCGATATCGT TTGAGTCCAT	2580
AGCACGCTCT GCCAATTCAG TCCGTGCATC AAGCGTTTCT GATTGTTTCA ATAATTCTGC	2640
AACCAGGGTT GTTTTACCGT GGTCAACGTG GCGGATAATC GCAAATGTTAC GGATATCTTC	2700
TCTTAATTTT GTCATGATTT CCTCTATAAT ATTCAAAATT TATTTTCTAA CTGAACGATT	2760
ATACCATAAT TTCAAATAAA TAACATAACT CAAGCAAGTG TAAATGTTTT CACTCTGCTT	2820
TTCTTTTCAC GTCAGCCTT TTCAAAGCGA GCGACTTATG ATAAGATAGG CACAGTATGC	2880
GTTTAGATAA TTTATTAGCT CAAGAAAAAA TCAGCCGAAA GGCCATGAAG CAAGCACTCC	2940
TCAGAGGGGA AATTCTAGTC GATGGTTGCC CAGCCCGCTC CCTAGCTCAA AATATCGATA	3000
CAGGACTACA AGAACTCCTT TTTCAGGATC GAATCATTCA AGGCTATGAA CACACCTATC	3060
TTATGCTTCA TAAACCTGCT GGTGCCGTTA CAGCCAACAA AGACAAGGAA CTTCCGACCG	3120
TCATGGACCT GCTTCCATCT AACATCCAGT CTGACAAGCT CTATGCCGTT GGCCGACTGG	3180
ACCGAGATAC AACGGGACTC CTCCTCTTGA CCGATAACGG TCCCTTGGGC TTTCAGCTCC	3240
TCCATCCCCA ATATCATGTC GATAAGACTT ACCAAGTTGA GGTAAATGGA CTTCTAACAC	3300
CTGACCATAT CCAAACCTTT CAAAAAGGAA TTGTCTTTTT AGATGACACT GTCTGTAAAC	3360
CCGCAAAACT AGAGATTCTA TCTGCAAGTC SCTCCCTCAG TCAAGCCTCT ATCACCATTT	3420
CAGAAGGAAA ATTCATCAA ATCAAGAAAA TGTTCTCTC GGTGGTGTT AAGGTGACTA	3480

1232

GCCTCAAAAG AATCCAATTT GGGGACTTCA CATTGAACCC AGATTTAGCA GAAGGTAAC	3540
ACCGCCCTTT GAACCAAAAA GAGTTACAAA TCATTAAAA CTATTAGAG ATGAGTCGAT	3600
AAAACAAAA AAGCTTTAAA ACTAAAGCTT TTTTCTTTA TTTACCGAAA AATTAAGGCG	3660
ATTGCTACAA TCCAGTTAAC TACAGAAATC ACAATTCCTA AGATATTAAG AATCTTTCT	3720
ATTTTATAGT CTAATTGTGA CTCTTTTGG TATGAAATAG CCAAGACCAA TCCTATGATA	3780
CCCAAAATCA GGCCTACAAT TGGAAATAAC AAACCAAGAA TAATCGACAA GATACCCACA	3840
AAAAGTGGAT TTTTCTTCTT TTCTTTTATG TTCTAAGAAC TCCTTAAATT TTATACAAAT	3900
TAATTATACT ATAAAAAAT AGCTTCATCC TATCATTCGA CTAATTTGGA AATAAGGTTA	3960
GCTAGTCTTC ACTTCCCTT TCCAAGAATC CAAGCCATAA GAAAGGATAT AAATCTCAGA	4020
AAAACCTTGT TTTTCAAGT AAAGAGCTGC ATTTGTAAC	4080
CGTTGCGCAC GTTGGTTTTC	
GTAGAGAAGG ACAGGTTTAT CTTTACGAAG GGCTGCAAGA CTAGTTTCA ACTGACTTGA	4140
AGGAATATTG CGTGACCAA GGATATGTTT TCTGTGAAT TCTGCTGGT CGCGCAAATC	4200
AATCAATTGA CCCGTACGAA TCAAGGCTTC AAATCCTCA TTGTCCACAA TTTTAGCCGC	4260
ACGGCGAATA CGAAGATAGT TAAAGCCCAT CCACGCCAAC ATTGCTAGTA TAAGTGCCCA	4320
CAAAATCCAA GTAACCATTA GTTCTTTTCT CCATTTTCT CAATATAATC CAATTCTACC	4380
TTGTGCTCTC TCGAAGAAC TGCTTCTGCC TCTAGATAGT CTAATTTATC CATCAACCCT	4440
GCATCGTAAA TCCGAGATAG TTCCAACCTC ATCAGTTCAA TATCATATAA GCGTTTCCC	4500
ATGTAAACAA TAATACCAA TCGTTGAGG AATTGCTGCA CATCATAGAA TGTTTTCATA	4560
AGACTCATT TAGCAAAAT TTGTGTTTTT TTCAAGAAGA GACTCACACA ATGCTCCTTA	4620
TTTTCTATC TTCTTAGCG ATTCTAAGGC AAGTATGGTA CAATAAAAC ATGGGGATTC	4680
AACAATTACA TT	4692

## (2) INFORMATION FOR SEQ ID NO: 221:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 706 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 221:

GCTAAAAAGC TGATAATCTT CGACTCCTGT ATATGATGTG TCTTTTCATG TAAGACACGC	60
GCCGCCAGAA TCATGGCAAG AGCTGCAAGA CTGGCAAGTA AGAAGCCGAT AAGATAGGCA	120
AAAAGATAAG TGAATTTGAC AAAGAAAGTC AAAAGAACTA GGAAACCAAA GCCTCCTCCA	180



1233

AAAACTACCA AAGTCTTTCG TAAATCCCAG ATTTTATCCA ACTGCTTGAC GAGGGAAGTC	240
GTCTGACGAA CGCCTACAAT AGTTGCTAAC ATACTTCCTA AAAAGAATGG ATAGACATGA	300
GTTAAACTGG AGAAATAAAC AGAGGAATAA GAGGTCACTA GAAAACTACC AATAAACATG	360
GAGAAGAAAC TGATCAAGAA GGCAACAGCA GATAAGAGAA AGACCATCCC CTTCAACTGA	420
CCATTTGATT TAGCTTGTTT GGATAAGAAC CAAACTGCCA ATCCCCAAAG AATATAGTAG	480
TGAACCTCAA CTGCCAAACT CCAATTATGA ACAAACAAAT GAGGAATGAA CTGAGATTCA	540
TAACTCCAC CTGTTAGGAG TTCATAGAAG TTGGTCATAA AGCCTAAGAC GCCCGCAATC	600
TGGCCACCAA TTCCAGCAAC ATAGTCTTGG CGAACCAAGA AAGTAAAGG CATGGTCACC	660
AAGACCATCA AAACCACAGG TGGCACAATC TCGATAAAAG CGTCTT	706

(2) INFORMATION FOR SEQ ID NO: 222:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3236 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 222:

CAGCTGATGG GCAATATCAG TCATAGAAAT TTTTCAATT AACTTTTGAG CAATTTTTTG	60
GTTGATGATA CGAGGGATTT GGTGATTTTT CTTTACCAGG GGAGTCTCAG CAACCATCAT	120
TTTTGAACAG TGATAGCACT TGAAACGGCG TTTTCTAAGG AGAATTCTAG AAGGCATACC	180
AGTTGTTTCG AGGTAAGGGA TCTTAGACGG TTTTGAAG TCATATTTCT TCATTAGACT	240
TCCACAATCA GGGCAAGATG GAGCCTCATA ATCCAGCTTA GCGATAATTT CTTTGTGGGT	300
ATCCATATTG ATGATATCTA GAATCTTGAT GTTTGGGTCT TTAATATCGA GCAGTTTTGT	360
GATAAAATGT AATTGTTCCA TATGATCTT TCTAATGAGT TGTTTGTGCG CTTTTCATTA	420
TAGGTCATAT GGGACTTTTT TTCTACACAA AAATAAGCTC CATAATATCC ATAGGGGATT	480
TACCCACTAC AAATATTATA GAGCCCGAAA ATATGGGAAA ACTGATCCTT GTTCTGCTT	540
TTGTCTATAG AAGAATAATA AAGATTATCT TCTTCAAAT CTCCGATATT CTCTAAAGTT	600
TTGTGCAAGT TGCACAGAAC TTGTTTATTT TTTTGGTCAT CTTGCCATAG AAATATAAAG	660
CGTTTTTATA TATAATATAA TTATCAAAAG ACAAAGGAG TTCACCTCAT GGTAGAATTG	720
AATCTTAAAA ATATTTACAA AAAATATCCA AACAGCGAAC ACTATTCAGT TGAAGATTTC	780
AACTTGAACA TCAAAGATAA AGAATTTATC GTTTTCGTAG GACCTTCAGG ATGTGGTAAA	840

1234

TCAACTACAC	TCCGTATGAT	TGCTGGTCTT	GAAGACATTA	CAGAAGGTAC	TGCATCTATC	900
GATGGCGTAG	TTGTCAACGA	CGTAGCTCCA	AAAGACCGTG	ATATCGCCAT	GGTATTCCAA	960
AACTACGCTC	TTTACCCACA	CATGACTGTT	TATGACAACA	TGGCTTTCGG	TTTGAAATG	1020
CGTAAATACA	GCAAAGAAGA	CATTAAACAA	CGTGTTC AAG	AAGCAGCTGA	AATACTTGGA	1080
TTGAAAGAAT	TCTTGGAACG	TAAACCAGCT	GACCTTTCAG	GTGGTCAACG	TCAACGTGTT	1140
GCCATGGGGC	GTGCGATTGT	CCGTGATGCG	AAAGTATTCT	TGATGGACGA	ACCTTTGTCA	1200
AACTTGATG	CCAAACTTCG	TGTATCAATG	CGTGCTGAAA	TCGCTAAAAT	TCACCGTCGT	1260
ATCGGAGCTA	CAACTATCTA	TGTAACCTCAC	GACCAAACAG	AAGCGATGAC	ACTTGCAGAC	1320
CGTATCGTTA	TTATGTCAGC	TACTAAGAAC	CCTGCTGGTA	CAGGTACTAT	CGGACGTGTA	1380
GAACAAATCG	GTACTCCTCA	AGAAGTTTAC	AAAAATCCAG	TTAACAAATT	CGTTGCAGGA	1440
TTTCATCGGAA	GCCAGCTAT	GAACCTCATC	ACCGTGAAAT	TGGTTGGTAG	CGAAATTGTT	1500
TCTGACGGTT	TCCGTTTGAA	AGTGCCAGAA	GGAGCATTGA	AAGTTCTTCG	TGAAAAAGGC	1560
TACGAAGGAA	AAGAATTGAT	CTTTGGTATC	CGTCCAGAAG	ACGTGAATGC	AGAACCTGCT	1620
TTCTTTGAAA	CATTCCCAGA	CTGTGTTGTA	AAAGCGACTA	TCTCTGTATC	AGAACTGCTT	1680
GGTTCAGAAT	CTCACCTTTA	CTGTCAAGTT	GGTAAAGACG	AGTTTGTGTC	AAAAGTTGAT	1740
GCTCGTGAAT	ACTTGCAAAC	AGGTGCAACA	GTTGAGCTTG	GATTTGACTT	GAACAAAGCA	1800
CACCTCTTCG	ATGTAGAAAC	TGAAAAAACA	ATCTACTAAA	ATAAATAAAA	TTCAAAGCAC	1860
TACAAGAAAA	GATATCTCTT	TATCAATTGT	AGTGGAGAGA	TATCAGTTAA	TCTAGGGAGA	1920
GAAACAAAAT	GCTTCTCTCC	TTTTTGCTAG	AGAAGTCATA	TTATGCATCT	ATATTGTGAT	1980
GCTCTTTAAT	ACTCTTCGAA	AATCTCTTCA	AACCACGTCA	ACGTCGCCTT	GCCGTACGTA	2040
TGATTACTGA	TTTCGTCAGT	TTTATCTGCA	ACCTCAAAGA	TGTACTTTGA	GCAGCTTACG	2100
GCTAGTTTCC	TAGTTTGCTC	TTTGATTTCC	ATTGAGTATT	ATTTGTGGGT	ACCATCTACA	2160
AGTGAAGCTA	TATGCGTAAA	CTACGTGAGC	AATTGAATTC	GAAGTAGAGA	GGTAATAATA	2220
AATTTATGCT	ATAGTTATGG	TGACTTGTAT	GCTTTTGATT	CTAGTTTATC	AAATAATAGA	2280
TTAGAATTGT	CAGATAATAT	CATTTTGTGT	TATAATGAAG	AAAAAACAGA	GGTGTTCAAA	2340
TGTCAGAAGC	AGGTCATAAG	TTTTTAGCAA	AATTGGGGAA	AAAACGCTTA	CGTCCAGGTG	2400
GAAAGCGTGC	CACAGATTGG	TTAATTGCAG	AAGGAGGATT	TTCAAAAGAA	AAGAGAATAC	2460
TAGAGGTTGC	GTGTAATAGG	GGAACCTACAG	CAATTGAGTT	GGCACAGCGT	TTTGGTTGCA	2520
AGATAACTGC	TGTTGATATG	GATGCTCAAG	CTTTAGAAAGT	GGCTAAAAAA	TCTGCTGGAA	2580
CGGCAGGTGT	TGCTCATTTA	ATCAGTTTGT	AAAGAGCAAA	TGCAATGAAA	CTTCCTTATC	2640

1235

AAGATGCTAG TTTTGATATT GTTATAAATG AAGCTATGCT GACTATGCAA GCCGATCAAG	2700
CTAAGAAAAA ATGTGTAATG GAATATCTAA GGGTATTAAA ACCTGGAGGT CTTCTCTTGA	2760
CACATGATGT GCTTCTTAAG GAAGCTAAAG AGTCTATCAG ACAGGAATTA TCACAAGCAA	2820
TTCATGTAAG TGTAGGTCCT TTAAGTCAAG ATGGTTGGGA ACAGGTGATG ATAGAATCAG	2880
GTTATTGTGA TGTGAAAGCA TTGACTGGTG AAATGACATT AATGAAATTA TCGGGTATGA	2940
TTTATGACGA AGGTTTGCTA GGAACCTTGA AAATTTGTGT AAATGCTTGT AAAAAGGAGA	3000
ATAGAAAGCA GTTTTAACT ATGTATAAAA TGTTCGCTAA GAATAAACAG AAATGGGGCT	3060
TTATTGCGAT GGCTAGTTAT AAATCGTCAA AACGTTAGAT AATTATTGAA GTTAACTTTT	3120
CCTTTTTTCT TTCTTAAAAA ATATGCTATA ATAGAGAGTA AAAAAGTTTG AAAGAAAGAA	3180
AAAGATGAAT TTAAGAGATT ACATTGCAAC AATTGAAAAT TATCCAAAGG GTACCG	3236

(2) INFORMATION FOR SEQ ID NO: 223:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2885 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 223:

CCTGACTTTT CAAATTGGTT AGTTTGCCAC ACTTGCTTGA TATGTCGTG GAAAGCATGG	60
CTATTACTTC TCAAAGGGCG ATTTCTCACC CCATGAAAAG TGTCTATTTT TGTTAGGTT	120
TGTAAGTTAA TTCATTGTCA CATATTACTC TTTAACTGAT TGAGTGAGTA CCGCTTATAT	180
TTGATGCCAA ACGCCTTAAA AGTGTACCC TCAAGTCCTT TTAGAATACG GCTATAATTC	240
CGCTCATTGT AAAGTATCTT AAGCTCATCA CTATCTAGGT TGGTATTAAA AATGGTATTT	300
TCACGATTGT TTAGCACGTC AAAGAGTAAA TCCTGCTCCC AGTCACTCTT AGGCTTAATA	360
ACAGCATTTT TTGCTCCTAA ATCATCAATA ATTAAGTAAT CAACAGACTT CATGAGTTCA	420
GTAGCTTCAA ACTCTGTAAG TGTTCACCT TTACCATAAT TCCACCCCTC TTTAATTGT	480
TTGATCATTT CGGTTAGGCT TACAAAAAGC AACTCTTAG GTTCTCCTTT TGTCTTATAC	540
CCCTCATTTA TACCTTTGGC AATAGCAACT GATAAAAGTG TTTTCCAAT CCCTGTACCT	600
CCTGTGATAA GCGTATTTCC CCTCATGCCA TCAAGATATT TTGTACCTG ACCTTTTGCA	660
AATTCTAAAA ATCGCTTTTC TTCTGATGTT ACAGCATTA AATCATCAAA AGTTTGTAGTT	720
TTAAACTCAT CTGCTACATA GCTCTTATG CTCATCAACA CATTATAAGT TTGCATATAT	780

1236

AGTTTAGCAT	TCAAATTATC	AGCAATCGCA	TCTTCTTCAT	CTTGCTTTTT	CTGTTCTTCT	840
TGGCATTGTT	CACAATAGGG	TGGGATACAG	CGAACTTCTT	TTATTGCCTC	TCCGTTCTCA	900
TTCCACCCCA	CTACTACATG	TCTTTCTCCT	TTGATTGTG	TTAGCTGTAT	TTCATGCTTA	960
GGACACAATT	CGTCTAGTTT	AAATGTCTCA	ATATTTCCTA	AACTAGATTG	TAATGATTTC	1020
ATTTTCTGAC	CTCCTAAAAT	GGTTTTTCTT	GTGTTGGTAT	CCAATCTTCA	TAGCTGGTAG	1080
GCTCTAGTTG	ATTGGTTTGC	TGTTTTTTAG	CCTCACGCGC	TGCCCTGCTA	TTTCTAACAA	1140
GTTCCACCGT	CAATAAATTG	TCCTGTTTCC	AACGGTTAAG	GATTACCTTG	ATGTATGCAA	1200
AGTTTGCTTT	ACCCTGACTG	ACAGCCTCTT	TTAACGCCTC	ATGGATAAGC	TCTGGGCTAA	1260
AATCTTCTAG	CATATACTGC	AATTCTTGAA	TCTGTAACGG	TGACAATGCT	TTACCTGTCT	1320
CAGCTCGCTT	CATATTCAAC	AAGTCGTCTA	TTTCCACACT	GGTTACTTTT	TTATTTACAA	1380
AATCAGAAAT	CAGTTGAAAA	ATGTTTGGAC	TTTGTAGCTG	GATTTTCAGCC	ATTACCTCAT	1440
CAAATTCTGC	TTGTGTCATG	TTGTCTAAAT	CTAGTGTCA	TGCATTGCCT	CCTCAAACCT	1500
CTCTATAAGA	CAACTTTTAT	TTGCTTTCTG	AGTTCCATTT	TTAGAGTTAA	AAAGAATATC	1560
TTTTAAGGTT	ACAGTAGCCT	CTAAATACTC	CTTTTCAGCA	TGCTCTATAT	ACGCCTGTTG	1620
CTCTGCTTCG	TTCTCAAAAA	AGTGCTTAGC	TTGGCGTTTA	AAGAATGCTT	TTGCGCATAGC	1680
GTCCATTCA	AAAATACCAG	GGGCGAAAAA	CATTCCCGTA	GTGCTTTTAG	AGACCGCTTC	1740
GATTTTATGG	CTTTCATTCA	ATTTCAGGAAG	TTCAATCCAA	AGTAAACGGG	ACAACTCATC	1800
TTTGATGGAT	TTTGTCTGAC	TTTCCAATAA	AGAAAGGATT	CTTAGGCCAT	TTTCTTCGCT	1860
AATTTCTCGC	ATTTCTGCGC	TAATTCTGTC	TATACGTCTA	GTTAAATTCT	CATATGTTGT	1920
TTCTGTCATG	TTTTTACCTC	TGTTTCTTTG	TTGGTGTGAT	TTTTTAGCTT	ATTTTTTTAC	1980
TTCTAAACAT	CATTGTCTTA	ATTTCTGAT	AACTCATTTT	CAATTCAATC	ATAGCTATTG	2040
CCATATCCTC	AAATGCCTGG	TACTGCTCCA	ACTCCTCACT	AGTCAAGCTA	TCGATACCGT	2100
TATAGCCCCC	ACGCTCTTCT	CTTAACGTCT	TAGCGTTCAT	GTCTGTTACT	GCCTTTAGTA	2160
GCAAGTTGTT	CATGGTGCTA	TGCGCGTGCT	TTGGTGCATT	AGGCCATGTT	TCTATACTGT	2220
CATGCAAGGT	TTTTCTTTTC	GGTTTTTCTA	GCGCCCTCTG	CAGACGAATT	TCAGAAAGTT	2280
CCTCACGCAT	TTCAAAGAAT	GCTTTGACTA	GGTTTAGTTT	GAATTGCCGT	ACTGTTTCGG	2340
TATTCCTTAA	ATAAGTGATC	AGAAAAGTAG	CCTGTTGCTC	GTTCAGAATA	TAGGATTTTT	2400
TAGGTTGTCC	TCTAGTATCT	AATTTATGGA	TTTTAAATCC	AAGTATPCCC	AACTCTTCAA	2460
AGTCAGCCTT	ATTTCTCTTT	ATTAAGCGCG	TGATAGTGTG	GTGTTGTACT	TCAGCACATT	2520
CAGCGATGAT	CTCGCTTGTTG	GTGTACGGCT	CTTTCTTACC	GTCCATGTAA	ACTAGTTCCA	2580

1237

TTACGGTTCT ACCTCCTGTA TAAATCTGGT TAGCTTACTT TTAAATTGCC TCCTCTAGCC	2640
TCTTTTTTAG CCTCTAAAAC GGCTTTGGCT AGTGGTTAAT ATTATTTACC ACTTGTCTCT	2700
ATAAACGTGT TAGAGGCCTT TATAACGACT TGTATCGCTG TATCGATATC CTCCGTGGAA	2760
TAGTAGATTT ATTTTCTAAT ATCATTCAAG ACTTGTTTAA CCCATTCTT GAAAGAAATA	2820
AAATTACATC TTCTTTATCC TTGGCATCTG CTTTGTCTGA GACAAATTAG AATGTCAATA	2880
CTTGG	2885

## (2) INFORMATION FOR SEQ ID NO: 224:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3144 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 224:

TATCAATCCT TTCCCATTAT AGGAGCAACA GAGTGGGAGT AGTCATCTAA GGACTAATTT	60
ATGTATTTTT ACGAGTCAGT ATCTTGGGAT ACTGTTTTT ACTTTTCTAG ACTTTTGTAC	120
TACTTGTTAA AACTGGGATA ATTTTCGACT GTTTAACAGT TATTATGCAA AGTCTAAAAG	180
ATTAGAATTG TCAAAACAAT CCGTCTAGGC TTGATTTTAT CCTTTATTTA CTATAAAATG	240
AGAAGGAAAA ATGTCAAAC TTTATATTGC AAATAGGAGA AATCATGACA AAAACATTAA	300
AACGTCTGA GGTTTTATCA CCTGCAGGGA CTTTAGAGAA GCTAAAGGTA GCTGTTTCACT	360
ATGGAGCAGA TGCTGTCTTT ATCGGTGGTC AGGCCTATGG TCTTCGTAGC CGTGCGGGAA	420
ACTTTACTTT CGAACAGATG GAAGAAGGCG TGCAGTTTGC GGCCAAGTAT GGTGCCAAGG	480
TCTATGTAGC GGCTAATATG GTTATGCACG AAGGAAATGA AGCTGGTGCT GGTGAGTGGT	540
TCCGTAAACT GCGTGATATC GGGATTGCAG CAGTTATCGT ATCTGACCCA GCCTTGATTA	600
TGATTGCAGT GACTGAAGCA CCAGGCCTTG AAATCCACCT TTCTACCCAA GCCAGTGCCA	660
CTAACTATGA AACCCTTGAG TTCTGGAAG AGCTAGGCTT GACTCGTGTC GTTTTAGCGC	720
GTGAGGTTTC AATGGAAGAA TTAGCTGAGA TCCGCAAACG TACAGATGTT GAAATTGAAG	780
CCTTTGTCCA TGGAGCTATG TGTATTCAT ACTCTGGACG TTGTACTCTT TCAAACCACA	840
TGAGTATGCG TGATGCCAAC CGTGGTGGAT GTTCTCAGTC ATGCCGTTGG AAATACGACC	900
TTTACGATAT GCCATTTGGG AAAGAACGTA AGAGTTTGCA GGGTGAGATT CCAGAAGAAT	960
TTTCAATGTC AGCCGTTGAT ATGTCTATGA TTGACCACAT TCCAGATATG ATTGAAAATG	1020

1238

GTGTGGACAG TCTAAAAATC GAAGGACGTA TGzAGTCTAT TCACTAyGTA TCAACAGTAA	1080
CCAACTGCTA CAAGGCGGCT GTGGATGCCT ATCTTGAAAG TCCTGAAAAG TTTGAAGCTA	1140
TCAAACAAGA CTTGGTGGAC GAGATGTGGA AGGTGCCCCA ACGTGAAGTG GCTACAGGAT	1200
TTTACTATGG TACACCATCT GAAAATGAGC AGTTGTTTGG TGCTCGTCGT AAAATCCCTG	1260
AGTACAAGTT TGTCGCTGAA GTGGTTTCTT ATGATGATGC GGCACAAACA GCAACTATTC	1320
GTCAACGAAA CGTCATTAAC GAAGGGGACC AAGTTGAGTT TTATGGTCCA GGTTCCTGTC	1380
ATTTTGAAAC CTATATTGAA GATTTGCATG ATGCTAAAGG CAATAAAATC GACCGCGCTC	1440
CAAAATCCAAT GGAAGTATTG ACTATTAAAG TCCCACAACC TGTTCATCA GGAGACATGG	1500
TTGAGCTCT TAAAGAGGGG CTTATCAATC TTTATAAGGA AGATGGAACC AGCGTCACAG	1560
TTCTGTCTTA ATGTAGTTGT TTAGTTTAA AAACTATGC AAAGCTCCAT ATACAACACT	1620
TAAACGAGAT TAAAGAATGG CGAAATCCCT TGATGCGCAA GAGATTAGCT GTCTTTTITA	1680
TTTTTTAAGT GATAAAGTCG GAGTTTAGGC ATCAAAGCCT ATCAAATTAA ACAAAGAAGC	1740
GATGTCTTAG ATATTTTGAA AAAAAATTAAT AAGCAGAAAA CTCTCTATTA TTTTGTGTGA	1800
GAGAGTTTTT TGTTAATAAA ATTTCAAAA ATGACATTTA TATATTGCAT TAAGTTAGAT	1860
ATATGATATA ATATTGTTAA AAAGAGGCGC AACTTTTTAA AATTAATGAG AATCAAAGAG	1920
AAAACCAATA ATATTAATGG AGGAATAAAA AATGTAAGTA AGCATTATGG TCATTCAATC	1980
ATTCTCAAAG ATATAAATTT TGCACTTAAC AAGGGTGAAA TTGTTGCTCT AGCAGGGAGA	2040
AATGGAGTTG GTAAGAGTAC GTTGATGAAA ATTCCTGTTC AGAATAATCA ACCGACTTCA	2100
GGTAATATTA TAAGCAGTGA TAATGTTGGG TATTTAATCG AAGAACCAAA ATTATTTITA	2160
TCTAAAACAG GTTTAGAGAA TTTAAAATAT TTGTCAAATT TATATGGTGT TGACTACAAT	2220
CAAGAAAGAT TTAGATGTTT GATCCAAGAG TTAGATTGA CTCAGTCTAT TAATAAAAAA	2280
GTAAAGACCT ATTCTTTGGG TACAAAACAA AAATTAGCTT TGCTTCTAAC TCTCGTTACG	2340
GAACCTGATA TATTGATTTT AGATGAACCG ACTAATGGTT TAGATATTQA ATCATCACAA	2400
ATAGTTTTAG CGGTTCTAAA AAAATTAGCT TTACATGAAA ATGTGGGAAT TTAAATATCG	2460
AGTCATAAAT TAGAAGACAT TGAAGAAATT TGTGAGAGAG TTCTTTTCTT GGAGAACGGG	2520
CTTTTGACAT TTCAAAAAGT AGGAAAAGAT AGTCATAATT TCTTGTTTGA GATAGCTTTT	2580
TCATCAGCTA CAGATAGAGA CATTTTCATT ACCAAACAAG AATTTTGGGA TATTGTTTAG	2640
GAAGAGGGAT TGAGAATTAC TATGTCTGGG AATATTCAAA ATAGTGAGCT TTTTAAATTT	2700
TTTAACGAAA ACTCTATTAA AGTAGTTGAT TTTGAACTA AAAAAGAGAC GCTTAAAGAT	2760
ATTTACCTAA ATCGTTCAAA ATAAAGGAAG GTTATAATCA TGAAATTAAA TAAACAGAAG	2820

1239

AATCGGATGA TTTACGTCTT GTCTAATTTT CTATATGCTA TCTCAGTTTC CATTATTTAT	2880
GCTTTGAATG GCATTGTGTT ACTAGTCATA GTAAGTAAAT TGGGTATTCC AGGTGATTTA	2940
GGATTAAATT TTATAGTAGC TATTGTAGTC AATACAATTT TGTTAGTCCT GTTTTATTTT	3000
CTATTATCTT ACATTTTCTA TTTATACAAA TTGAAAAGTG GCTTGGTATW TGGTATTTTA	3060
GTAGCTTTAC TACTCTTTAT CTCTAATATA TTAAATACGA TGATGATGAA TACTAGTAAT	3120
GATTTGTTTA TCAAAGCAAT TGAA - - - - -	3144

(2) INFORMATION FOR SEQ ID NO: 225:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 3766 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 225:

TACGGTATTA TTTTAAAGGA GAAAGAATCA TGAAAATCAA AAAATGGCTT GGTCTAGCAG	60
CCCTTGCTAC AGTCGCAGGT TTGGCTCTTG CAGCTTGCGG AAACCTCAGAA AAGAAAGCAG	120
ACAATGCAAC AACTATCAAA ATCGCAACTG TTAACCGTAG CGGTTCTGAA GAAAAACGTT	180
GGGACAAAAT CCAAGAATTG GTTAAAAAAG ACGGAATTAC CTTGGAATTT ACAGAGTTCA	240
CAGACTACTC ACAACCAAAC AAAGCAACTG CTGATGGCGA AGTAGATTTG AACGCTTTCC	300
AACACTATAA CTTCTTGAAC AACTGGAACA AAGAAAACGG AAAAGACCTT GTAGCGATTG	360
CAGATACTTA CATCTCTCCA ATCCGCCTTT ACTCAGGTTT GAATGGAAGT GCCAACAAGT	420
ACACTAAAGT AGAAGACATC CCAGCAAACG GAGAAATCGC TGTACCGAAT GACGCTACAA	480
ACGAAAGCCG TCGCTTTTAT TTGCTTCAAT CAGCTGGCTT GATTAAATTG GATGTTTCTG	540
GAACTGCTCT TGCAACAGTT GCCAACATCA AAGAAAATCC AAAGAACTTG AAAATCACTG	600
AATTGGACGC TAGCCAAACA GCTCGTTCAT TGTATCAGT TGACGCTGCC GTTGTAACA	660
ATACCTTCGT TACAGAAGCA AAATTGGACT ACAAGAAATC ACTTTTCAAA GAACAAGCTG	720
ATGAAAATC AAAACAATGG TACAACATCA TTGTTGCAA AAAAGATTGG GAAACATCAC	780
CTAAGGCTGA TGCTATCAAG AAAGTAATCG CAGCTTACCA CACAGATGAC GTGAAAAAAG	840
TTATCGAAGA ATCATCAGAT GGTTTGGATC AACCAGTTTG GTAATAAGAA ACAGGGAGGT	900
GGGAGAGAAA ATTCCACCTC TTGCTTTTGT ATAGAGTATA GATTGTAAAG AAGACTATT	960
GTTCATAGAA AGGTAGAGAG AATATGGTTT TTCCTAGCGA ACAAGAACAG ATTGAAAAAT	1020

1240						
TTGAAAAGGA	TCATGTAGCC	CAGCATTATT	TTGAGGTTTT	GCGTACCTTG	ATTTCTAAGA	1080
AATCAGTCTT	TGCCCAGCAG	GTTGGACTCA	AGGAAGTCGC	AAATTATCTG	GGTGAGATTT	1140
TCAAGCGTGT	TGGAGCTGAA	GTGGAGATTG	ATGAGAGCTA	TACAGCGCCC	TTTGTCAATG	1200
CACATTTCAA	GAGTTCGCGT	CCAGATGCCA	AGACCTTGAT	TTTCTATAAC	CACTATGACA	1260
CTGTGCCAGC	GGATGGGGAT	CAGGTCTGGA	CAGAGGATCC	KTTTACGCTT	TCGGTCCGCA	1320
ATGGCTTCAT	GTATGGGCGT	GGGGTTGATG	ACGACAAGGG	TCATATCACA	GCTCGCTTGA	1380
GTGCTTTGAG	AAAATATATG	CAGCACCATG	ATGATTTACC	TGTCAATATC	AGCTTTATCA	1440
TGGAGGGAGC	GGAGGAATCG	GCTTCAACAG	ACCTAGATAA	GTATTTGGAA	AAGCATGCAG	1500
ACAAACTCCG	TGGGGCGGAT	TTGTTGGTCT	GGGAACAAGG	GACCAAAAAT	GCCTTGGAAC	1560
AGCTGGAAT	TTCTGGTGGC	AATAAGGGGA	TTGTGACCTT	TGATGCCAAG	GTAAAAAGCG	1620
CTGATGTGGA	TATCCACTCG	AGTTATGGTG	GTGTTGTGGA	ATCAGCTCCT	TGGTATCTCC	1680
TCCAAGCCTT	ACAGTCTCTT	CGTGCTGCGG	ATGGCCGTAT	CTTGGTTGAA	GGCTTGTACG	1740
AAGAAGTACA	AGAGCCCAAT	GAACGAGAAA	TGGCCTTGCT	AGAAACTTAT	GGTCAACGAA	1800
ACCCAGAGGA	AGTTAGTCGG	ATTTATGGAT	TGGAGTTGCC	TCTCTTACAG	GAGGAGCGGA	1860
TGGCCTTTCT	AAAACGTTTC	TTTTTCGATC	CAGCGCTTAA	TATCGAAGGA	ATCCAGTCTG	1920
GTTATCAAGG	TCAGGGTGTT	AAGACTATTT	TACCTGCAGA	AGCCAGTGCC	AAGCTAGAGG	1980
TTCTGCTGGT	TCCGGGCCTA	GAACCGCATG	ATGTTCTGGA	AAAAATTCGG	AAACAGCTAG	2040
ACAAAAATGG	CTTTGATAAG	GTAGAATTAT	ACTATACCTT	GGGAGAGATG	AGCTATCGAA	2100
GCGATATGAG	CGCACCAGCC	ATTCTCAATG	TGATCGAGTT	GGCCAAGAAA	TTCTATCCAC	2160
AGGGCGTTTC	AGTCTTGCCG	ACGACAGCGG	GGACAGGACC	TATGCATACG	GTCTTTGATG	2220
CCCTAGAGGT	ACCAATGGTT	GCATTGCGTC	TAGGAAATGC	CAATAGCCGA	GACCACGGTG	2280
GAGATGAAAA	TGTGCGAATC	GCTGATTATT	ACACCCATAT	CGAATTAGTA	GAGGAGCTGA	2340
TTAGAAGCTA	TGAGTAGAGA	TATTATCAAG	TTAGATCAGA	TCGATGTGAC	TTTTCACCA	2400
AAGAAGAGAA	CCATCACAGC	GGTTAAGGAT	GTGACCATTG	ACATCCAAGA	AGGGGATATC	2460
TACGGAATCG	TTGGATATTC	TGGAGCAGGA	AAATCAACCC	TTGTACGGGT	GATTAATCTC	2520
TTGCAAAAAC	CATCTGCAGG	GAAAATTACC	ATTGACGACG	ATGTGATTTT	TGACGGCAAG	2580
GTGACCTTGA	CGGCAGAGCA	GTTGCGTCGT	AAACGTCAAG	ATATCGGAAT	GATTTTCCAG	2640
CATTTTAACC	TGATGAGCCA	AAAGACAGCA	GAGGAGAATG	TAGCCTTTGC	CCTTAAACAC	2700
TCTGAACTCA	GCAAGGAAGA	AAAGAAGGCT	AAAGTAGCTA	AGTTGTTGGA	CTTGGTTGGT	2760
TTGGCAGATC	GTGCTGAAAA	CTACCCTTCA	CAACTATCTG	GAGGGCAAAA	ACAGCGTGTG	2820



1241

GCAATTGCGC GTGCCTTGGC CAATGATCCA AAAATCTTGA TTTCAGACGA GTCAACTTCT	2880
GCCCTTGATC CGAAGACAAC CAAGCAGATT TTGGCCTTGT TGCAAGATTT GAACCAAAAA	2940
TTAGGCTTGA CTGTGTCTT GATTACGCAT GAAATGCAGA TTGTCAAAGA CATTGCCAAC	3000
CGTGTTCAG TTATGCAGGA TGGGCATTTG ATTGAAGAGG GTAGTGTGCT TGAAATCTTC	3060
TCAAACCCTA AACAACCTTT GACTCAAGAC TTTATCTCAA CAGCTACAGG TATTGACGAA	3120
GCCATGGTCA AAATCGAGAA GCAAGAAATC GTGGAACACT TGTCTGAAAA CAGTCTCTTG	3180
GTGCAACTCA AGTACGCTGG AGCTTCAACA GACGAGCCAC TTTTGAATGA ATTGTACAAG	3240
CATTACCAAG TAATGGCTAA TATTCTCTAT GGAATATCG AAATTCTCGA TGGTACTCCT	3300
GTTGGAGAAT TGGTGGTGGT TTTGTCAGGT GAAAAGCAG CGTTGGCAGG TGCCCAAGAA	3360
GCCATTCTGC AAGCAGGTGT ACAAATAAAA GTATTGAAGG GAGTACAGTA AGATGGAATC	3420
ATTGATTCAA ACCTATTTAC CAAATGTCTA TAAGATGGGT TGGGCTGGTC AGGCAGGCTG	3480
GGGAACGGCT ATCTACTTAA CTCTTTATAT GACAGTTCTT TCCTTCATTA TCGGAGGCTT	3540
CTTGGGGCTA GTGGCAGGTC TCTTTCTCGT CTGACAGCG CCAGGTGGTG TCTTGGAGAA	3600
TAAAGTCGTA TTCTGGATTT TAGACAAAAT TACCTCAATT TTTCGTGCGG TTCCCTTTAT	3660
CATCCTCTTG GCAATCTTGT CACCACTTTC TCACTTGATT GTTAAACAA GTATCGGGCC	3720
AAATGCAGCC CTGTCCAC TTTCTTTTGC AGTCTTTGCC TTCTGG	3766

(2) INFORMATION FOR SEQ ID NO: 226:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2520 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 226:

TGTTGCTGAG TTAATCGGTA CGTTCATGTT TGTATTCGTC GGGACAGGAG CTGTTGTTTT	60
TGGAAATGGT CTTGATGGCC TTGGTCACCT TGGAAATCGCC TTTGCCTTTG GTTTGGCAAT	120
CGTGGTGGCA GCCTACTCAA TCGGAACTGT TTCAGGTGCT CACTTGAACC CGGCTGTTTC	180
GATTGCTATG TTTGTAAACA AACGTTTGTG ATCTTCAGAA CTTGTAAACT ACATCCTTGG	240
TCAGGTTGTT GGAGCTTTCA TCGCTTCTGG CGCTGTCTTC TTCCTCTTGG CTAATCAGG	300
TATGTCAACT GCTAGTCTTG GTGAAAATGC CTTGGCAAAC GGTGTCACTG TCTTTGGTGG	360
TTTCTTGTGTT GAAGTCATCG CAACTTTCTT GTTTGTATTG GTTATCATGA CTGTGACTTC	420

1242

AGAAAGCAAG GGCAATGGCG CGATTGCTGG TTTGGTAATC GGTTCATCAT TGATGGCGAT	480
GATTCTTGTC GGATTGAAGA TTA CTGGACT TTCAGTAAAC CCAGCTCGTA GCTTGGCACC	540
AGCTGTCTTG GTAGGCGGCG CAsCTTCAA CAAGTTTGGA TTTTCATCCT TGCACCAATC	600
GCTGGTGGAG TTCTTGCAGC CCTTGTTGCA AAAAATTTCC TTGGAACAGA AGAATAATTG	660
AAACTCAAAA AGCCTTGCTC CTCATCTTGA GGAACAGGGC TTTTTCGTAT GATACTCTTC	720
GAAAACTCTCT TCAAACCACG TCAGCTTCAT CTTGCCGTAG TATGGTTACT GACTTCGTCA	780
GTTCTATCCA CAACCTCAAA ACAGTGT TTT GATCTGACTT CGTCAGTTCT ATCTGCAACC	840
TCAAAACAGT GTTTTAAGCT GACTTCGTCA GTTCTATCTG CAACCTCAAA ACAGTGT TTT	900
AAGCTGACTT CGTCAGTTCT ATCTGCAACC TCAAAACAGT GTTTTAAGCT GACTTCGTCA	960
GTTCTATCTG CAACCTCAAA ACAGTGT TTT AAGCTGACTT CGTCAGTTCT ATCCACAACC	1020
TCAAAACAGT GTTTTGATCT GACTTCGTCA GTTCTATCCA CAACCTCAAA ACAGTGT TTT	1080
GATCTGACTT CGTCAGTTCT ATCCACAACC TCAAAACAGT GCTTTGAGCA ACCTGCGGCT	1140
AACTTCCTAG TTTGCTCTTT GATTTTCATT GAGTATGACT TTAGCGGTG TCAATTTCT	1200
CTGGATAAAG GTCGTGTTGG AAGAGGCGTT GTTCTGCCAA GCCCTCATAC TTAGTTCCTT	1260
GCTTACCGTA GTTGTAGTAG GGGTCGATTG AAATGCCACC GCGCGGAGTG AATTTTCCCC	1320
AGACTTCTAA ATAGCGAGGG TCTAGCAAGT TGACCAAGTC TTTCCCGATG GTGTTGATAC	1380
AGTTTTCGTG GAAATCTCCG TGGTTTCGGT AGCTAAATAG ATATAGTTTG AGGGATTTTG	1440
ACTCGACACA GAGCTTGTC A GGAATGTAGG AAATATGAAT CGTCGCAAAG TCTGGCTGAG	1500
CAGTGATTTG TCCCAGCAGA GACATATCGA GGATATGGTG ACGAATGCC TGTTCCTTAG	1560
CGATTTCTCT AGTAATTTGA ATTTGAGGT GATGACGTTG GCCGTAGGCA AAGGTGACAG	1620
CTTCGACTGT TTCATAGTGT TGCATGACCC AGAAAAGGCA GGTGTTGAA TCTTGACCAC	1680
CACTAAAGAC GACCAAGGCT AATTGACGTT TCATAGTACT CCTTCCAAAA TGGGAAATGT	1740
TCAGAGCAG CAAAAAGCTC CCATTAGGGA GCTAAAAAAT ACCAAATCGA GGTTTTTTTA	1800
GCGATGGCAT ATCCCAAACA TCGTAATATT CTACTTATAT AGTAAAATGA AATAAGAACA	1860
GGACAAATCG ATCAGGACAG TCAAATCGAT TTCTAACAAT GTTTTAGAAG TAGAGGTGTA	1920
CTATTCTAGT TTCAATCTAC TATAGTCTAG CATATTTTTT GAAAAATGGC AAAGGGCAAG	1980
AAAAAAGAGA CCAAAGAAAG TACTTGGTCT CTCGTTTGAT TAGCTCAATT CAGCAATGAT	2040
GGCCTTGATT TGTTCTGCTG TGTGAACACC TGCAACTGT TTGACAACTT GGCCGTCTTT	2100
TTTGAAGAGA AGAGTTGGAA TAGACATGAT TCCAAAAGCA CGAGCTGTGT TTGGATTTTC	2160
ATCAACGTCC ATTTTAACGA TTTTCAAGAC ATCTTCTGAA AGTTCTTCAG ACAATTTGTC	2220

1243

CAAGATTGGA CCTTGCCATAC GACATGGACC ACACCAAGTT GCCCAGAAGT CTTACTAAGAC	2280
CAAAACCGTCT TTTGTTTCTT GTTCGAATGT TGCATCTGTA ATTGCTTTTG CCATTGTATT	2340
TCTCCTTTTT TTAGTTATAT TGGCTTAAAT CTTGTTTCAT GAGATAGAAG AAGATATCTC	2400
CATAAGTCCC ATGGTAGTCC AAATTATGAC CCTTGTAAGT TAATTTTGG ACAGGGTAGT	2460
AkkCTGCGAC GCCGATAAGG CAAGCTTGTT GCGAACGTTT AAAGTCTTCA TAAGACTCGG	2520

(2) INFORMATION FOR SEQ ID NO: 227:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5278 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 227:

ACTCAGTTAG ATTTGTGTTTT CAAAAACAAC GAAGAAAAAG ACCATGTTGC TCTACTTGGA	60
AGAATTGGCT CCGAACGTGT TTATCGATAT ATTAATAAAA AATATTTAGA TTTACCGGAA	120
ACATTCGAAA ATTATAATGT TTTTGTACCA GAAGCTAATG GAAGTGGTGC CTTAGGTGAA	180
GTCTTATCAA CACCCCTAAT CGGGGAACCC CTAATCGGGC ATACAGATAC TTTTTATCT	240
ATTGGTAATT TAAAAACAAA ATTTGAAGCC GATGCTTGTA TTAAATTTAT TAAAACTAAA	300
TTCGCTAGAG TATTATTAGG TGTTTTGAAA GTTACTCAGC ATAATTCAGC CAAAACCTGG	360
TATTACGTCC CCCTCCAAGA CTTTACGGTC AATTCGGACA TTGATTGGAC ACAATCAGTG	420
ACTGATATTG ACCGCCAGCT TGATCAAAAA TATGACTTTT CCCCTGAAGA AATTGCCTTT	480
ATTGAGAATC ATGTAAGGGA GATGGATTAG AAAAGTATTT TTATTTGACA AATAGTGCTC	540
AATGATCTAA AATGACTATA TAGGATTAGG TCAGGAAGCA TACGATGCCC TGACCCTTTT	600
TGTAATTATG AGATGAGAAA GTCATTTGTT AGATAAATTG ACTCGTTAGC AAACGTTCAA	660
AAAAGGAAAA CTTATGCCAG TAGAAATTAA AACCCTAAA GAAATTCATC CTAAATCTA	720
TGCCTACACC ACACCGACAG TAACCAAGTAA TGAAGGCTGG ATTAAGATTG GGTATACAGA	780
ACGTGATGTC ACACAACGTA TCAAGGAGCA AACGCATACA GTCATATAG CTACAGATGT	840
CTTATGGACT GGTGATGCAG CTTATACAGA AGAGCCTGAT AAGGGGAAAA CTTTCAAGGA	900
CCATGATTTT CACCATTTC TTTCTTTCCA TGATGTAGAA CGTCGTCCCA AGACGGAATG	960
GTTCTATTTT AATGGAATC CTGAAAAATC AAAAAATCTT TTTGATAAGT TTGTTTCAGCA	1020
TGATTTGTCT GGTATCAGC CTGAAAAAGG ACAGGACTAT ACTCTGCGAC AAGAGCAAGA	1080

1244

AGAAGCAGTT GCTAAGACAT TAGCTTATTT CCAAGAACAT GCTGGAGGCA AGTTTCTCTG	1140
GAATGCCAAG CCACGCTTTG GTAAAACCTT GTCTACCTAT GACCTAGCTC GACGGATGGA	1200
AGCTGTCAAT GTCCTAATTG TAACAAACCG CCCTGCCATT GCTAACTCAT GGTATGATGA	1260
TTTTGAAACA TTCATAGCAG GTCAAACGAC TTACAAGTTT GTTCTGAAT CAGATAGCCT	1320
TAAGAGTCGT CCAATCTTGT CACGACAAGA ATTTCTTGGT ATTTTAGCTG ACGATGTAAG	1380
ACAACTTGCT TTTATCAGTC TCCAAGACTT GAAAGGATCT GTTATTTAG GTGGAGAGCA	1440
CGATAAACTC AAATGGGTAA CTGATCTGCA TTGGGACTTG TTGGTTATTG ACGAGGCTCA	1500
TGAAGGAGTT GATACCTTCA AGACTGACCA AGCCTTTAAT AAGATTGAC GAAATTTTAC	1560
TCTGCATTG TCAGGTACAT CATTTAAAGC ATTGGCTAAA GGAGATTTTA CAGAGGAACA	1620
AATCTACAAC TGGTCTTATG CTGATGAGCA GGCTGCTAAG TATTCGTGGT CTCTTGAGCA	1680
AGAAGAGGAA AATCCTTATG AAAGCTTGCC TCAGTTGAAT CTCTTTACCT ATCAAATGTC	1740
TCAGATGATT GGCGAAAAGT TAGAAAAAGG CGCTCAGATC GATGGTGAAT ATATTGACTA	1800
TGTTTTTGAC TTAAGTGAAT TTTTCGCTAC AGATGATAAA GGGAAATTTA TTCATGAGCA	1860
TGATGTCAGA AATTGGTTAG ATACTCTATC AAGCAATGAA AAATATCCAT TTTCAACCAA	1920
AGAACTCCGT AATGAACTCA AGCATACTTT TTGGCTTTTA GAACGTGTCG CTTCGGCCAA	1980
AGCATTAAAA GCCCTACTAG AAGAACACCC AATCTATGAA AACTATGAGA TCGTTCTAGC	2040
TGCTGGTGAC GGACGTATGT CCGAAGAAGA CGATAAAGTC AAACTCAAAT CCTTGGACTT	2100
GGTTAGAAAA GCGATAGCAG AGAATGACAA AACCATTACC CTATCCGTTG GTCAGCTGAC	2160
GACAGGTGTC ACTATCCCTG AATGGACAGG TGTATTGATG TTATCAAATT TGAAATCACC	2220
AGCTCTTTAT ATGCAGGCCG CCTTCCGTGC TCAAATCCT TACTCATGGA GCGATAACAA	2280
AGGAAATCAC TTTGCGAAAAG AAAGAGCCTA TGTATTTGAC TTGCGCCGG AAAGAACCTT	2340
GATTCTCTTT GATGAGTTTG CCAACAACCT ATTGCTTGTA ACTGCAGCTG GTAGAGGAAC	2400
TTCAAGCTACA CGCGAAGAAA ATATTAGAGA ATTATTAAC TTCTTTCCAA TTATTGCCAA	2460
AGACCGTGCT GGTAAGATGG TTGAAATTGA TGCAAAGGCA GTTCTAACCA CTCCTCGCCA	2520
GATAAAAGCT AGAGAAGTTC TTAACGAGG TTTTATGTCC AATCTCTTAT TTGATAATAT	2580
TAGTGGTATT TTCCAAGCAA GTCAAACAGT TTTAGATATT TTAATGAGC TGCCAGTTGA	2640
AAAGGAAGGG AAGGTACAAG ATAGTTCTGA TTTATTAGAT TTTTCAGATG TTACAGTCGA	2700
TGATGAGGGA AATGCAGTAG TAGACCATGA AATTGTAGTT AATCAGCAAA TGCGACTTTT	2760
TGGTGAAAAA GTTATGGAC TTGGTGAATC TGTGCTGAG TTAGTCACAA AAGATGAGGA	2820
ACGAACTCAA AAACAGCTGG TCAATGACTT GAGTAAGACC GTTCTTCAG TGATTGTAGA	2880

1245

GGAATTGAAA GCAGATTATT CTCTAAAAAC AAGGGAAACT GAGCAAATTA AGAAACAAAT	2940
TACAGCAACA CTTGAGAATG AAATTCGAAA AAATGATATC GAAAGAAAAA TTTCTGAAGC	3000
TCATATCAAG CAAGAGTTGC AACAGCAGCT CAAAGAAGCA AATGATAAAG CGCAAAAAGA	3060
TAAGATTCAA GAAGATTTGG AAAAACGTTT AGAAGAAAAT AAATCATTTC ATAAAGAAAA	3120
ACTAGAACAA AACTCAAAA AAGAAGTGGG AAAAATGCCT GAGAAATTTA TCGAACAGGT	3180
---TGAGATAAAA CGTGTGGAAC AGTTGAAACA ATCAGCTCAA GATGAAATTC GTGACCATT	3240
ACGAGGGTTT GCAAGAACAA TTCCAAGTTT TATTATGGCT TACGGTGATC AAATCTAAC	3300
ACTTGATAAT TTTGATGCCT TTGTTCTGA ACATGTTTTT TATGAAGTAA CAGGGATTAC	3360
GATTGATCAG TTTAGATATT TGCGAGATGG TGGGCAGGAT TTTGCAGGGC ATCTCTTTGA	3420
TAAAGCAACA TTTGACGAAG CTATTCAAGA ATTTCTTCGC AAGAAAAAGG AGTTGGCGGA	3480
TTATTTTAAA GATCAAAAAG AAGACATTTT TGACTATATT CCACCGCAGA AGACCAACCA	3540
AATTTTCACT CCTAACGAG TGGTGAAGG GATGGTAGAT GATTTGGAAA AGGAAAATCC	3600
AGGGATTTTT GATGATCCAT CTAAGACTTT TATTGATTTA TATATGAAGT CAGGCCTCTA	3660
TATTGCAGAA CTTGTGAAGC GGTATATATA TAGCAATGGC TTGAAAGAGG CCTTTCCAAA	3720
TCCTGAAGAA CGCTTAAAC ATATTTTGA AAAGCAAGTT TATGGATTG CTCCGTCTGA	3780
GATTATCTAT AACATTTCCA CTAATTTTAT ATTTGGCAAT CTTTCTAAAG ATATCAGTAG	3840
GAAGAATTTT GTTTTAGCAG ATACCATTCC AGCGGCTAAA GAAGGGAGCA TTCAAAAGTT	3900
GGTTGATTCC TATTTTGAAA ATAATTAAAA AGAAGGCCGA GTCAAAATTC TTTGAAATCA	3960
GAAAAACGC ATAATATTGA GTGCTTTTGT ACTGCCCCC AAAAGTTAGA CAGAAAAAAT	4020
CTAACTTTTG GGGGGCAGTT CAGACAATCC TTGGTATTAT GCGTTTTATT GTGGGAAGAT	4080
GTATAATGGA TTGAAATAAG ATATGAACAA ATCAATTAGG AATTTAAAGC ATTTTATAAC	4140
AACGTTTTAG AGTAATGGG GGCTATTTCA ACTTCAACCT ACTATAATAC AGAAAAAAC	4200
AACTCCCTGA TAATTCAAGG AGTTGTCTAT AGTTAAATTA GTTTTTAGAA GCTTCTTGGA	4260
ATTCTGGGTT TTTCCATGCT TCGTCAATGA TAGCTTGTA TTTCTTAGCA GATGCTTGCA	4320
TTTTTTGAGT TTCTGCGTCG TTCAATGGGA TATTTACTGG ACGAACCATA CCATGTGCAC	4380
CAACAACAGC TGGTTGACCG ATAAAGACAT TCTCAACTCC GTATTGACCT TCTTGAATA	4440
CTGAAAGTGG AAGTACTGCG TTTTCATCGT CAAGGATTGC TTTAGTGATA CGAGCAAGGG	4500
CTACTGCGAT ACCGTAGTAT GTTGACCTT TTTTGTGAT GATTGTGTAG GCTGCATCAC	4560
GAACACCTTC GAACAATTCA ATCAATTCAG CTTCTTGAAC ATTTTGAGTG TCTTTAAGGA	4620

1246

ATTCTTCAAG GTTTACACCA GCGATGTTAG CGTGTGACCA AACAGCGAAC TCAGAGTCAC	4680
CGTGTTCCACC CATGATGTAG GCGTGCACTG AACGAGCATC CACATCCAAT TTTTCAGCAA	4740
GTGCTTGACG GAAACGAGCT GAGTCAAGTG AAGTACCTGA ACCGATAACG CGTTCTTTAG	4800
GGAAACCAGA GAATTTCCAA GTTGAGTAAG TCAAAACGTC AACTGGGTTA GCAGCAACAA	4860
GGAAGATACC TTTGAAACCA GATTCAACAA CTTGAGTTAC GATTGATTG TTGATAGCAA	4920
GGTTTTTACC TACAAGGTCA AGACGAGTTT CACCTGGTTT TTGAGGTGCA CCTGCAGTGA	4980
TCACAACAAG GTCAGCGTCT GCACAGTCAG AGTATTGAGC TGCATAGATT TTTTATAGTG	5040
AAGTGAAGGC AAGGGCGTGA CTAAGGTCAA GCGCATCACC AACAGCTTTT TCATGCAATT	5100
GTGGAATTC GATAATTCCA AGCTCTTG TG CAATTCCTTG GTTAACAAGT GCAAAAGCGT	5160
AAGATGAACC TACAGCACCA TCACCGACAA GGATACTTT TTTGTGTGT TTAGTTGAAG	5220
TCATTGTTTT AAACATCTCC TTAATTTTAT TAGGGGATTT TCCCTAGACA ACTTCATT	5278

(2) INFORMATION FOR SEQ ID NO: 228:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1941 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 228:

ATAAGGAATC TCTAAAAAAT TTAAAGGAGA ATCTAGCAAA TGGATTTCAC ATGGGCACTG	60
AAGTATGCCA CTGAATTTTT GGGAACTGCC ATTTTGATCA TTCTTGGGAA TGGTGCAATT	120
GCCAACGTTG AACTTAAAGG TACGAAAGGT CACCAAAGTG GCTGGATCGT CATCGCTGTT	180
GGTTATGGTA TGGGGGTTAT GATCCCAGCC TTGATGTTTG GTAACGTATC TGGGAATCAC	240
ATCAACCCTG CTTTCACTCT AGGGCTTGCA GTTAGCGGTC TTTTCCCTTG GGCACAAGTG	300
GTACCTTACA TTATCGCGCA AGTCTTGGGG GCTATCTTTG GCCAAGCCTT AGTTGTGGCA	360
ACATACCGTC CATTCTACTT GAAAAC TGAA AACCCAAATA ACATCTTGGG AACTTTCTCA	420
ACTATTTCAA GTATTGACCA TGGTACAAAA GAAAGTCGCT ATGCAGCAAC TGTCAATGGT	480
TTGATTAAATG AGTTTGTTGG TTCATTGTGT TGTTCCTTTG CAGCTCTTGG TTTGACTAAA	540
AACTTCTTTG GTGCTGAAGT GCTTCAATTC ATGAAACAAA AGGCAACAGA AGCAGGACAA	600
ACAGTTGATT TTTCTGACTT GGCTATTAAG GCACAGGTGG CTCCACACAC TGCTTCAGGA	660
CTTTCTGTGG CTCACCTGGC ACTTGGATTC CTCGTTATGG CTTTGTTAAC ATCACTTGGA	720
GGACCTACAG GACCTGCCTT GAACCCAGCC CGTGACTTGG GACCACGTCT CCTTCATGCT	780

1247

TTCCTTCCCA AATCAGTTCT TGGTGAGCAT AAAGGCGATT CAAAATGGTG GTATTCTTGG	840
GTACCAGTAG TAGCACCTAT CGCAGCAGCA ATTGCGGCAG TAGCTGTATT CAAATTCCTT	900
TATCTCTAAG AAATAGCTCC TTTAACATTT GAGTGAGCAC CATCTATAAG TAAGAGAGGA	960
TCAGACTGGk TCTCTCTTTT kGATTTTtAG GGAAATGAAA GAActCTAAA CAAACTCCTC	1020
TCCAGCAGTG GTTTAGAAGT CTCAGTGGGC TATTCCAGCT TCAATGGACT ATAGTAGGTT	1080
GCAGTTGAAA TAATAGACCC TTGTTTCTAA AACATTGTGA GAAATTGGTT TGAATTCTCC	1140
AATCAAATG TGCAGTTTTC ATTCTACTAT ATATTATCGG AATATTATCG GAGATGGGTT	1200
CCCTATCTTG TAAGTCTGCT TTATAGTGGG TTGAAGTTGG AATAGTCCTC CCTTCTTTCT	1260
CAAACATTGT GAGGAATTGA TTTACCTTCC TCAACAAAAT GTTCAGTTTC TATTTCAATT	1320
TACTATAAAA TAAGCGATTA GGGGGGCTAT TCTTCGACCT ACATTGACTC TGCTGAGTCC	1380
TATGATTGTT ATCGTTTAT CTGCAATTTT AACTCAATG AAAATCAAAG GGCAAACATA	1440
GAAGCTAGCC GCAGGTGTT CAAAACACAG TTTTGAGGTT GTATAGTAGA TTGAAACTAG	1500
AATAGTACAC ATCTACTTCT AAAACATTGT TAGAAATCGA TTTGACTGTC CTGAACGATT	1560
TGCCCTATTC TTGTTTCATT TTAATATATA AACCAGAGAC TGTTTACATT TTCAGCAAGT	1620
GAGTGGATGG ATAATGCTGA AAACCTCTTG AAGGATAAGT CTATTTAGTA CTTTCTATTA	1680
ATTAGTTAAA TTTTACCAA GAATAATTCA CAAAAACGTT GTAAACACT TGCAATTTAG	1740
CTGAAATTTG ATAAAATAGT AAGGAAAGTT AGACTGTATT GCCTACTGTC TATCTATAAA	1800
ATATATTTTA TTGGAGGCTT TTAATCAAAT GGCAAAAGAA AAATACGATC GTAGTAAACC	1860
ACACGTTAAC ATTGGTACTA TCGGACACGT TGACCACGGT AAAACTACCC TAACTGCAGC	1920
TATCACAAC GTTTTGGCAC G	1941

(2) INFORMATION FOR SEQ ID NO: 229:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 755 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 229:

ATTTGAAGAA ATTGAAGAAA TCGTAGCCCC TACAGATGGT GAATTTTGG GGGAAGTTT	60
ACTTGGAAC GGGGTAGTTC TCTTAATTGG AGTAGCCTGT TGTAAAAAG ATAGGGAGTG	120
ATAATCATGC AAGATAACTT TTTATTGAG GAAATTGAAG AAATTCAGT ACCAGTTAAT	180

1248

GATTTTTCAG CTGGACTTGC AACAGGTATC GGATTTGGTT TAGCAATCCT TGCTCTTGCT	240
GGTTGTTGAA GTTTGTTTCAT TTTACTAACAT CAAGCTTTTT CAATTTTCATT TTAGACAGTC	300
ATTTAAATTT TCCGTATTAG TCTTGCAGCA AGAGATTAAT AGAATTAGTC ATTATTTTAT	360
TGATTGCGGA CTGAGGGACT AGAGTATGTT TTTACTTAACC CCTCTTTTAT TTATTAAAGG	420
TTAGGTTTGT TATGAGAATT GTTGATAAGA TTAAGATATT ACCTACTCCT TATGAGGGAC	480
ACTATCATTT ATATATACCA TCCAGTAAGA AACATGTATT AGTTGGGAAA CAGGAAAAAA	540
ATGGTTAGAG CAACTAATAG GTCAAGAATT TACCATATCG GACTTATTAG TGTTAGTAGG	600
GAAGAAATAT TTTTAAATA TCTTGGGACT TTAATATAAC ATTATCTGAA AAATTAAACT	660
ATAAAAGATT TAATAAGAAT TTTGAAAAAA TCCTATCTTG TTGTCATTAT ATTTGCAACG	720
ATACATGAAA TTAGTCATGC AATAATTGCT AATAA	755

## (2) INFORMATION FOR SEQ ID NO: 230:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1483 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 230:

CCAGAAAAAC CGTAGTGGAG CTCGTGGAAC AGTGGAATTG ATTTTCCAAA AAGAATACAA	60
TAAATTTTCA AGTATCTCAA AGAGGGAGGC ATAAGATGTC AGATGCATTT ACAGATGTAG	120
CCAAGATGAA AAAAATCAAA GAAGAAATCA AGGCACATGA GGGACAAGTC GTAGAAATGA	180
CTTTGGAGAA TGGTCGTAAG CGCCAAAAAA ATAGATTGGG TAAGCTAATT GAAGTTTATC	240
CATCTCTATT TATTGTGGAG TTTGGGGATG TGGAAGGAGA TAAACAAGTT AATGTTTACG	300
TTGAATCCTT TACTTACTCA GATATTCTTA CAGAAAAGAA TTTGATTCAT TATCTTGACT	360
AAAGTGAGAA ATTTTCTCAC TTTTCTTTT TTCTCCGAAT AATTTAGGTG AAGGCAATCA	420
TCGCTTTATA TTATTTTTC AAGGAGGAAGA ATGAAAATTT TACCGTTTAT AGCAAGAGGA	480
ACAAGTTATT ACTTGAAGAT GTCAGTTAAA AAGCTTGTTT CTTTTTTAGT AGTAGGATTG	540
ATGCTAGCAG CTGGTGATAG TGTCTATGCC TATTCCAGAG GAAATGGATC GATTGCGCGT	600
GGGGATGATT ATCCTGCTTA TTATAAAAAT GGGAGCCAGG AGATTGATCA GTGGCGCATG	660
TATCTCGTC AGTGTACTTC TTTTGTAGCC TTTCGTTTGA GTAATGTCAA TGGTTTGTAA	720
ATTCGGGCAG CTTATGGAAT TCGGAATGAA TGGGGACATC GTGCTCCTCG GGAAGGTTAT	780
CGTGTAGATA ATACACCGAC GATTGGTTCC ATTACTTGGT CTAATGCAGG AACTTATGGT	840



1249

CATGTTGCCT GGGTGTCAAA TGTAATGGGA GATCAGATTG AGATTGAGGA ATATAACTAT	900
G GTTATACAG AATCCTATAA TAAACGAGTT ATAAAAGCAA ACACGATGAC AGGATTATT	960
CATTTTAAAG ATTTGGATGG TGGCAGTGTT GGGAATAGTC AATCCTCAAC TTCAACAGGC	1020
GGAACCTATT ATTTTAAGAC CAAGTCTGCT ATTAAACTG AACCTCTAGC TAGCGGAAC	1080
GTGATTGATT ACTATTATCC TGGGGAGAAG GTTCATTATG ATCAGATACT TGAAAAAGAC	1140
GGCTATAAGT GGTGAGTTA TACTGCCTAT AATGGAAGCT ATCGTTATGT TCAATTGGAG	1200
GCTGTGAATA AAAATCCTCT AGGTAATCT GTTCTTTCTT CAACAGGTGG AACTCATTAT	1260
TTTAAGACCA AGTCTGCTAT CAAAAGTAA CCCCTAGTTA GTGCAACTGT GATTGATTAC	1320
TATTATCCTG GAGAGAAGGT TCATTATGAT CAAATTCTCG AAAAAGACGG CTACAAGTGG	1380
TTGAGTTATA CGGCTTATAA CGGAAGTCGT CGCTATATAC AGCTAGAGGG AGTGACTTCT	1440
TCACAAAATT ATCAGAATCA ATCAGGAAAC ATCTCTAGCT ATG	1483

## (2) INFORMATION FOR SEQ ID NO: 231:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1027 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 231:

CCCGGAAAAC AAGTTAAAGT TGAAGTTGGT CAAGCAGTTT ACGTTGAAAA ATTGAACGTT	60
GAAGCTGGTC AAGAAGTTAC TTTTAACGAA TTGTTCTTGT TGGTGGTGAA AACACTGTTG	120
TCGGAAGTCC ACTTGTTGCT GGAGCTACTG TAGTTGGAAC TGTTGAAAAA CAAGGAAAAC	180
AAAAGAAAGT GGTACTTAC AAGTACAAAC CTAAAAAAGG TAGCCACCGT AAACAAGGTC	240
ACCGTCAACC ATATACAAAA GTTGTCATCA ACGCAATCAA CGCTTAATTT TAAGGAGAAC	300
ACATGATACA GGCAGTCTTT GAGAGAGCCG AAGATGGCGA GCTGAGGAGT GCGGAAATTA	360
CTGGACACGC CGAGAGTGGC GAATACGGCT TAGATGTCGT GTGTGCATCG GTTTCTACGC	420
TTGCCATTAA CTTTATCAAT TCTATTGAGA AATTGTCAGG CTATGAACCA ATCCTAGAAT	480
TAAACGAAGA TGAAGGTGGC TATCTGATGG TTGAAATACC AAAAGATCTT CCTTCACACC	540
AGAGAGAAAT GACCCAGTTA TTCTTTGAAT CATTTTCTT AGGTATGGCA AACTTATCGG	600
AGAACTATTC TGAGTTCGTC CAAACCAGAG TTATCACAGA AACTAACAC GGAGGAAAAC	660
ATTATGTTAA AAATGACTCT TAACAACTTG CAACTTTTCG CCCACAAAAA AGGTGGAGGT	720

1250

TCTACATCAA	ACGGACGTGA	TTCACAAGCA	AAACGTCTTG	GAGCTAAAGC	AGCTGACGGA	780
CAAACGTGTA	CAGGTGGATC	AATCCTTTAC	CGTCAACGTG	GTACACACAT	CTATCCAGGT	840
GTAAACGTTG	GTCTGGTGG	AGATGATACT	TTGTTGCTA	AAGTTGAAGG	CGTAGTACGC	900
TTTGAACGTA	AAGGACGCGA	TAAAAAACAA	GTGTCTGTTT	ACCCAATCGC	TAAATAAAAA	960
GGTCCATTGA	ACCTTTTATC	CCGAACCTTG	AAATGTAGAG	GTGAGGAAGC	TAGAAACAGC	1020
TTAAAAAT						1027

## (2) INFORMATION FOR SEQ ID NO: 232:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1990 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 232:

CGGTTCAAAT	GGTGCAGGTA	AATCTACGTT	AATTAATTCT	ATTGTAGGTT	TTCAAGAGAT	60
TTATTTAGGA	GAAATAGAGT	ATTGTGATAA	AGATTTGATA	GTTAGTTCTC	AACCTTTTGC	120
TCATTTAGGC	TTTACTCCTC	AAACCACAGT	AATTGATTTT	TATACTACTG	TGAAGGACAA	180
TGTAATATTG	GGGCTGAACC	TTGCTGGAAA	GTTTGGGAAA	AATGCTGAGA	AGTTGTGTCA	240
AATAGCCTTA	GAAATTGTTG	GGTTAGCTGA	TAAAAAAAAT	AATTGGTAG	AAACATTGTC	300
AGGTGGACAA	CTGCAACGCG	TCCAGATTGC	TAGAGCAATA	GCTCATAATC	CAGATTTTTC	360
TATTTTAGAT	GAACCTACCG	TTGGTTTAGA	TACTGAATCT	GCCGAAAAAT	TTTAAATGTA	420
TTTAAAGAT	AAGAGTTTGG	AAGGAAAAAC	TATTATCATA	TCCTCACATG	ACATAAATCT	480
ACTCGAAAAG	TTTTGTAAAA	AAATACTTTT	TTTACAAAAT	GGCTCCATAT	CATTMTTTTG	540
TGATATGCGT	GACTTTGTAG	ATAATTCAAC	TATCAAATTA	AATTTTTC	TGCAGAATAG	600
AATTTCTAGA	TATCAAATTG	AATTTTGTAGA	AAATTTTGTAGA	TTTAAAGTTC	ACATCGAAGA	660
TAATGATAGT	TTTACAATAG	AAGTCCCTAT	AGAAGAAAAG	ATCTTAGATG	TTATCAATGA	720
GGTAGGAAAA	GCATGTGAAA	TTAAAACTT	TTCAACAAGT	AAATTAACCT	TACAAGAAAG	780
TTATTTGCAA	AGAATAGGAG	GAGAAAAATG	AAGGCTGATC	AATTAAGGCA	CAAATCGGAC	840
TTAGGTTTAA	GAGGTCTAGC	GATTATTGCT	AAAAATGAGA	TTATTGCTTT	TTTTAGAAGT	900
AAAGGTTTAA	TTATTTCTCA	GTTTCTACAA	CCAATCTTAT	ATGTTGTTTT	TATAATAATA	960
GGATTAAATT	CTTCGATAAA	GAACATTCAG	TTTAATGATA	TAAAAACCTC	TTATGCAGAA	1020
TATACAATCA	TTGGTGTTAT	AGCTTTATTG	ATAATCGGGC	AGATGACTCA	AGTTATTTAT	1080

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AGGGTGACAA TAGATAAAAA ATATGGGCTA CTTGCTCTTA AGTTATGCAG TGGAGTTCGT	1140
CCTTTATATT ATATTTTAGG GATGAGTATC TATTCTATAT TAGGGTTGAT AGTTCAAGAA	1200
ATTATTATAT ATATAATTAC GTTAGCGTTT GAGATAAATA TCGCAATGGA TAGATTTTTT	1260
TATACAGTTT TGTATCTAT TGTGTTTTTA TTATTTTGGG ACTCCCTTGC AATTTTACTT	1320
ACAATGTTTA TCAATGATTA CAGAAGACGT GATATTGTAA TACGTTTTGT ACTAACACCG	1380
CTTGGTTTTA CAGCTCCTGT TTTCTACTTA ATAGATTCTG CTCCTAGTAT TGTGAGATGG	1440
ATTGGTCAGT TAAATCCCTT AACTTATCAA TTAATATTT TGAGAACTT TTATTTTAAA	1500
AATTCAACAA CTTTGAATT AGTTTTCTTA TTGTTAACAT CATTACTTGT CCTTATATCT	1560
GTATCTTTTA TTATACAAA GATAAAATTG ATACTGATAG AAAGATAAAA GTTGGGTCAT	1620
CCAACTTTTT TGTGCTCTCC CGAAAACCAC TAGCTATGCT AGTGGTTCCA TAGAGCTTTT	1680
AGCGTGGTAA CAAAAAGAAC CTCCTAAAAT GATAAGATAG AAGTGGTTTC TCCGCCACTA	1740
CAACATATCA TACAGGAGGT ACCTCATGAG AGAGGATAAT CAAAGTTTAT CACATACCAC	1800
ATGGAATTGT AAATATCATA TTGTTTTTGC ACCCAAATAT CGTCGTCAA TCATTTATGG	1860
CAGATACAAA GCTAGTATCG GAAGAATCAT ACGTGACTTA TGTGAGCGTA AGGGTGTAAT	1920
AATCCATGAA CGGAATGCTT GTTCAGACCA TATTCACATG CTTATCAGTA TTCCTCCGAA	1980
ACTTAGTGTT	1990

(2) INFORMATION FOR SEQ ID NO: 233:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 4766 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 233:

GAACATATATT GCATATATTT CTAGCAATGA TCATGGCGAA TCTTGGTCTG CACCAACTTT	60
ATTACCTCCT ATAATGGGAC TTAATCGGAA TGCGCCATAT TTAGGTCCTG GACGTGGAAT	120
CATTGAAAGC TCAACTGGAC GTATTCTTAT TCCGTCTTAC ACTGGTAAAG AGTCTGCGTT	180
CATTTATAGT GACGATAATG GAGCATCTTG GAAAGTTAAA GTAGTGCCAC TTCCTTCTAG	240
TTGGTCAGCA GAAGCACAAT TTGTAGAATT GAGTCCAGGA GTAATTCAAG CATATATGCG	300
TACAAATAAT GGTAAAATTG CATATTTAAC AAGTAAAGAC GCAGGTACTA CTTGGAGTGC	360
ACCGGAATAT TTGAAATTG TTCAAATCC AAGTTATGGA ACACAATTAT CAATCATCAA	420

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TTATAGCCAA	TTGATTGATG	GTAAAAAGGC	TGTCATTTTA	AGTACTCCAA	ACTCCACAAA	480
TGGTCGTAAA	CACGGACAAA	TTTGGATTGG	TCTAATTAAT	GATGATAATA	CAATTGATTG	540
GCGTTATCAT	CACGACGTTG	ATTATAGTAA	CTATGGATAC	TCATATTCAA	CATTGACAGA	600
GTTACCAAAT	CATGAAATTG	GATTGATGTT	TGAAAAATTT	GATTCATGGT	CTCGTAATGA	660
ACTTCATATG	AAAAATGTTG	TACCATATAT	AACATTTAAG	ATTGAAGATC	TGAAAAAGAA	720
TTAAAGCTGA	AATTTGAAAA	TATATAAAAA	GAGGATAAAA	ATTATGGTAA	ATTACGGTAT	780
TGTTGGAGCT	GGATATTTTG	GAGCTGATTT	AGCTCGCTCA	ATGAACAAAA	TTGAAGATGC	840
AAAAGTGGTT	GCGGTATTTG	ACCCAAATCA	TGGAGAAGAA	GTTGCTCAAG	AGTTGGGATC	900
AGATGTTTGT	GCAAGTTTAG	ATGAACTTGT	AGCACGTGAA	GATATTGATT	GTCTGATCGT	960
AGCTTCACCT	AGCTACCTTC	ACCGTGAACC	AGTTGTGAAA	GCTGCTCAAC	ATGGCAAACA	1020
CGTATTTTGT	GAAAAGCCAA	TTGCATTGTC	TTATGAAGAT	TGTAAAGCCA	TGGTTGACGC	1080
ATGTAAAGAA	AATAATGTCA	TCTTTATGGC	TGGTCACATC	ATGAACTTCT	TTAACGGTGT	1140
ACACCATGCT	AAAGAATTGA	TTACTCAAGG	TAAATCGGT	AAAGTTCTTT	ATTGCCATGC	1200
TGCTCGTACA	GGTTGGGAAG	AACAACAACC	AACTGTATCA	TGGAAGAAAC	TTCTGTTCTCA	1260
ATCTGGAGGA	CATTTGTACC	ACCATATTCA	TGAATTAGAT	TGCATTCAGT	TTATCATGGG	1320
AGGACTTCCT	GAAAAAGCGA	CAATGGTAGG	AGGCAATGTA	TATCATAAAG	GTGAAAACTT	1380
TGGTGATGAA	GATGATATGC	TCATTGTAAA	CTTAGAATAC	TCTGATGATC	GTTATGCTGT	1440
TTTGAATAT	GGTAATGCTT	TCCGTTGGGG	TGAACACTAC	GTCTTGATTG	AAGGAACTGA	1500
AGGAGCTATC	AAACTTGACT	TGTTCAATAC	TGGCGGTACT	CTTCGTGTTA	AAGGTGAAGG	1560
AGAATCACAC	TTCTTAGTTC	ATGAAACTCA	AGAGGAAGAT	GATGATCGTA	CAGCTATCTA	1620
TACCGGTCGT	GGTATGGATG	GAGCAATTGC	GTACGGTAAA	CCAGGAGTAC	GTTGCCCATT	1680
ATGGTTGCAA	ACATGTATTG	ATAAAGAAAT	GGAATATCTA	CATGACATCA	TTAAAGGTGG	1740
AGAAATTACA	GAAGAATTG	AAAAACTTCT	CAATGGTGTA	GCTGCTTTAG	AATCAATCCT	1800
TACCGCTGAT	GCATGTACTT	TATCAGTTAA	AGAAGATCGA	AAAGTAAGTC	TTTCAGAAAT	1860
CACAAATGCT	TAACTTTTGT	AAAACAGAAT	AGTAAATTCT	TGTCATTATA	TAATTTCTAA	1920
AGTTCTGTGA	TACAACTCAT	TGAATAAAGA	AATAGAGATG	GGACTGGGAT	AATGCCCAGT	1980
CCCATTTTTT	ATCAAAAAGT	AATGAGATCA	AAAATGTGGG	AGTGTGAAA	TGAAGATTAT	2040
AGGTATCGAT	ATTGGCGGAA	CAACAATTAA	GGCAGATTTA	TACGATGAGT	TTGGAACGAG	2100
TTTGAATCAT	TTCAAAGAGA	TAGAAACAAT	TATTGACTAT	GATTTGGGAA	CGAATCAGAT	2160
ATTAAATCAG	GTCTGTGATT	TAATGGTGA	GTATACTTTA	AATCATTCAA	TTGATGGTGT	2220

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TGGGATTTC	ACTGCTGGAG	TTGTTAATGC	TAATACTGGA	GAAATCATCT	ATGCAGGCTA	2280
TACAATACCA	GGGTATATCG	GAGTAAACTT	TACTGCCGAA	ATAGAAAAAC	GTTTTGGGTT	2340
GTATACTTTT	GTTGAAAAATG	ATGTTAATTG	TGCTGCATTA	GGTGAATTGT	GGAAGGGACA	2400
AGCCAAAGAT	AAGAAAAATG	TAGTAATGGT	TACTATTGGA	ACAGGTATAG	GAGGCAGTAT	2460
TATTGTCAAC	GGACAAATTG	TTAACGGATT	TAATATACT	GCTGGTGAAG	TAGGTTATAT	2520
TCCTGTAGGT	AATTCGGATT	GGCAAAGTAA	AGCCTCAACA	ACCGCATTGA	TTCATTTATA	2580
TCAAAAAAG	AGCTTGAAAA	CTAATCAAAC	TGGACGTACT	TTCTTCACTG	ATTTAAGATC	2640
TGGAGATAAA	GTTGCTGAAG	AAACTTTTGA	AATTTTGTGTA	GAAAACTAA	CAAAAGGTTT	2700
ATTAACGATT	TCTTATCTAC	TTAATCCAGA	AATTCCTATA	TTAGGAGGTG	GGATTCTGGA	2760
TAGTAAGGAT	ATTTTGTTAC	CTGAAATTCA	AAGTTCTTTA	GCTAAAAATG	CAATGGATAA	2820
TAGGTTTTTA	CCTAAAAATC	TTGTGGCAGC	TACATTAGGA	AATGAAGCTG	GTCGTATAGG	2880
AGCTGTAAAA	AATTTCTTAG	ATAGAATTTT	TAATAAATAG	TATGTAAGAT	AAGGAGGTGT	2940
CACAATGACT	AACTCTGTAT	TTTCGACAAT	GCAAGATATT	GAGAATGTTG	CAACCGATAT	3000
TATAAAATCA	TATGATAATG	AGATTTATAC	TTATAAAGCT	GTTTCCCAAG	AAGAATTGGA	3060
AAAACAGAA	AAAAGTTATG	ATGAAAAAAG	TCACGAAGAA	TTAGTTTCAA	TAGAAAGCAA	3120
TTTAGAAATG	AAACAACAGA	ACCTTATTGA	TGAGGTTAAT	AAAACAATCA	AGGAAAATGA	3180
TGCAATATTT	CAGTATATTT	CATCAAGTAG	GAGAGGAGAA	TTGTAGAAA	AAATTATTGG	3240
TAGGGTGSTA	GAAAAATATG	GCCATTAGTC	AGATGAAAAG	AATCTCTCTA	CTATTTTCTA	3300
AAAGTAGTCT	TGATGATGTT	TTAAAACTA	TTCAAGAACT	AGAGTCAGTG	CAGTTCCGTG	3360
ATTTAAAGGT	TCAGGATAAC	TGGTCAGAAG	CTCTAGAAAA	AGATGAAGTT	GTATTTCCAA	3420
CTATTCAAAT	TTTTCATACT	TCTAATTCCA	ATCATGGGGT	TATTGAGGGA	AATGATGCCT	3480
TGACTTATTT	GATGAATCAA	CAACAACATT	TAGAAGCAAC	TGTAGAGAAA	TTACAAGAAT	3540
ACCTACCGAA	AGAAAACACG	TTTAAATTAT	TGCAGCAACC	TCCGATAACT	ACCTCTTATG	3600
AAGAATTAGA	GAAATTTGGT	AAAGCTAATG	TTGCTGAGGG	TGTTCTTAAA	AAAGTGAATC	3660
ATCAAATTAA	CAGAGTTCAT	GAATTAGAAA	GACACATTCA	AAGTAATAAT	GAGGAAATAG	3720
AGCGATTAAT	AAAGTGGGAA	AAATTAGAAA	TTGTTCTCTG	GAATTTAGAA	CAATTTTCTT	3780
TCTGTAAAGG	AAAAGTCGGA	ACAATTCCAA	GGACTGAAGA	TAATCGCTTA	TACAATAGTC	3840
TTTTAGAAAA	CAATATTGAA	GTTCAAGAAA	TATTTTCTAA	TGATAGAGAG	TACGGTGTG	3900
TTGTTTCTA	TCAGTCTAGT	TACTCTATAG	ATTTTGATGA	ATACTTATTT	GAACCATTTG	3960

1254

ATTATTCTAG AAAGGAATTA CCGAAGCAGC GAGTAGTAGA TTTAGATCAA GAAAACATGC	4020
AGTTAATAAC TGAAAAAGAG AATATTATCG CATCGTTGCA AGATTCAAAG AAATATTTGA	4080
TAGATTTACA ATGGCAAATA GACTATATTT TATCTATCTA TGCTCGTCAA ATCTCTAAGA	4140
ATAACTTTTT GTGCACTCCG CATCTAGTTG CATTAGAAGG ATGGATAGAA GAAACTCGTA	4200
TTTTATATTT TATAAAAGTT ATGGATGAGC ATTTTGGACA TTCTATTTAT ATTTATGAAT	4260
CGGAAACATT GACGGATAAT CAAGATGAAA TACCTATCAA ATTAACGAAT CATTCTTTAA	4320
TTGAACCATT TGAATTATTG ACAGAAATGT ATGCTCTGCC CAAATATTAT GAGAAAGATC	4380
CTACACCTGT ATTAGCACCA TTTTACTTTA CATTTTTTGG AATGATGGTT GCTGATTTAG	4440
GCTATGGTTT ACTATTGTTT TTAGGAACAA TGTTAGCATT AAAAATTTTT CATCTACCTT	4500
CAGCAACTAA GAGATTTTTA AAATTCCTTA ATATATTAGG GGTAGCCGTT GCAATTTGGG	4560
GTGGAATCTA TGGCTCATTT TTTGGATATG AGTTGCCATT TCATCTGATA TCTACAACCT	4620
CTGATGTCAT GACTATATTA GTAGTGTCAG TTGTGTTTGG GTTTATTACA GTATTTGCAG	4680
GTTTGTTAGC TTCAGGACTA CAAAAAGTAA GAATGAATAA ATATGCAGAA GCATATAATT	4740
CAGGATTTGC GTGGTGTGTT ATTCTG	4766

## (2) INFORMATION FOR SEQ ID NO: 234:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2484 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 234:

CCTTTTAGAA AAAATTAAAG AATACGACAC CATTATCATT CATCGTCATA TGAAACCAGA	60
CCCTGATGCC TTGGGAAGTC AGGTGGGATT GAAAGCCTTG CTGGAACATC ATTTCCCAGA	120
AAAAACCATC AAAGCCGTCG GTTTTGATGA ACCAACTCTT ACTTGGATGG CTGAGATGGA	180
TCTTGTTGAA GATAGAGCCT ACCAAGGCGC ACTTGTCATC GTCTGTGATA CAGCTAATAC	240
TGCTCGTATC GATGATAAGC GCTATAGTCA AGGTGATTTT CTCATTAAGA TTGACCACCA	300
TCCAAATGAT GATGTATACG GTGACCTGTC TTGGGTCGAT ACTAGTTCAA GTAGCGCTAG	360
aGaTGATTAC CCTATTTGCC CAAACAACCC AACTAGCCTT GGCAGATCGC GATGCTGAGT	420
TGCTCTTTGC AGGAATTGTC GGTGATACAG GTCGCTTCCT CTACCCTTCT ACCACTGCAC	480
GGACTCTTCG CCTGGCTGCT TATTTGAGAG AACATAACTT TGACTTTGCG GCTCTCACTC	540
GCAAAATGGA CACTATGAGC TACAAAATTG CTAAACTGCA AGGCTACATC TACGACCATC	600

1255

TGGAAGTGGA TGAAAATGGT GCTGCTCGCG TTATCTGAG TCAGAAAATC TTGAAACAAT	660
ACAATATAAC CGATGCTGAA ACTGCGGCCA TTGTAGGTGC ACCTGGACGC ATTGACAGAG	720
TGAGTCTCTG GGGAATTTTT GTCGAACAGG CTGATGGCCA CTACCGAGTT CGCTTACGCA	780
GTAAAGTCCA TCCTATCAAT GAAATTGCCA AGGAGCATGA TGGTGGAGGC CACCCTCTAG	840
CAAGTGGTGC TAATTCCTAT AGCCTAGAAG AAAACGAAAT CATCTACCAA AAGTTAGAAG	900
ACTTGCTTAA AACTGATAA AATACTTGCC AACTTTTTCA GAATCTGATA GACTAGTATA	960
GTAACAATCT ATGGCTCGCA AAGAGACCAT GGCAGAAAGG AAATATTGCA AAATGAAAAA	1020
AGATATCCAT CCAGAATATC GCCCAGTTGT CTTTCATGGAC ACAACTACTG GTTACCAATT	1080
CCTTAGCGGT TCAACAAAAC GCTCTAACGA AACAGTTGAG TTCGAAGGCG AACTTACCC	1140
ATTGATCCGT GTGGAAATTT CATCAGACTC ACACCCATTC TACACTGGAC GTCAAAAGTT	1200
CACTCAAGCA GATGGACGCG TGGATCGTTT CAACAAAAAA TACGGTCTCA AATAATGATA	1260
AGAGAACAGT TTTGGCTGTT CTTTTTTGTT TCTTGAAATC AACTGCTGTT TTCATGTTCC	1320
AGACTCATCT GTAGGTTTCA TTTCCATGCT ACTAGGCAGG AAGGAAATAG CTGTTTCAAC	1380
ACGTCCATAA TGAGCTATAC TATTGTCACG AACCACACTT TCATTGATGG TCCAAGTGA	1440
ATTCATTTTC TTAAGAGCTT CTCGGACTTT TTCCAAATCT TTGGAGGCAA TGGCCTGCTC	1500
TAAGGTTTCA AAACGAGGAC TTATACTCAT CTGCTTTCAA AAAGCATTCT AGTCCATCTC	1560
CGATTACCGA TGGACTTTAT CACCTCCTTC TCCAGTCCTT GTATGACATC TTGAAGTTGA	1620
TTCATGACAT CTTCCAAAGT TCgAAAGGCT TTATTCTTAA ATCCACGTTT ACGAATCTCT	1680
TTCCACACTT GTTCAATGGG TTCATCTCTG GTGTGTATGG AGGAATAAAG GTAAAATCAA	1740
TATTAGTCGG AATATTTAAG GTACTTGATT TATGCCATAT AGCATTGTCC ATAACGAGTA	1800
AAAGGATAAG CTTGTGAAAG CTCTTCTAAA AAGGCGTTCA TCCACACTCC TTTTATAAAA	1860
CCTGAAATAA GGCATCAATT GTAACAAATT CTCCTGCCTC TGTAGCCTTC AAATGACGGG	1920
CAAGAAAGGC TTTCTCTTCC TCAACTGTCA TATATGCATG GTTACGACCA CCACGTGTTT	1980
CTTGAAGGAG AGAGTCGAGT CCGAACTCCT CATATTTTTT TACGTTTCGC CAAATCGTTG	2040
TTTGATTACA GTCTAAAAGC TCTATAATCT CTTTATAAGA TTTGCCCATC AGACGAAATA	2100
TAGTAGATTG AACTAGAAT AGTACACCTC TACTTCTAAA ACATTGTAG AAATCGATTT	2160
GTCCTGTTCT TGTTTCATTT TACTATAGAA CGATTTGAAG GCGTTTATAA TATTTAGCTG	2220
TACGAGAGTC TTTTAAAAGT GTTTTGATGG TTTGGATTTT TTCTTTAGTT GATTTTCATAT	2280
TACTATTATA TAATGCTTTT TGATTTTAGT CTGGTATAAA TATTGCTTTC CTCCAAAATG	2340

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GTCATAGTTT TACTGGCAAA TCTAACATAT CACGGATAAA TTAACAAGTG ATTTCTGAAT	2400
TGCTAAACAT TTTCTTTTCT TATAGCATAC TTAAAGATTT TGTCTTTGAG AAAGATATTT	2460
CCAAGAAAAA CGTTCGTTTT TTGG	2484

(2) INFORMATION FOR SEQ ID NO: 235:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1766 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 235:

CTAGATATAG CTATAATTTT ATTTATAACA AGAGGATAGA AATGACCGAA TTAGAAAGAA	60
AAAATCGAAA AATTAGCTAA GAAATATTCT GATAACTTAA ACATCAAAGT TCAAGAGAGA	120
GTTTCGTGAAA TGGCAAATGA TAATAAGAGC CATTATTTGA TATACAGAGT TTTAGGTATT	180
TCATTTGAAG AAGGAGAAAA TATCGATTG TATCAAAATA AAGGTCGTTT TTTATACAAA	240
TATGCTGGTT CATTTTGTAGA AGAAGCTGCA GTACTATGCT TTAACGAAAA ATTTGGTACA	300
GAAAATACTT AAAAAGTTAA CATTCCTAAT TCTGAAAGTA CAAAACCTAA GACTTTTGAA	360
ATTGATTGTT TAGTCGGAGA AAAACACGCA TACGAAATAA AATGGTGGGA TGCAACTACA	420
GATGGAGACC ATATAACTAA AGAACACACT AGAATAAAAG TTATTCATAA CAAAGGATAT	480
ATACCAATTC GGTTAATGTT CTAATATCCA AATAGAACTC AAGCTATAAA AATTCAGCAA	540
ACTTTAGAAA CATTGTATAA CGGTATTGGA GGGAAATATT ATTATGGAGA TTCTGCCTGG	600
GAACATTTAA GAGCAGTGAC CGGTATTGAT TTAATTAGTA TTCTAACAGA TATTGCAAAT	660
AAAAAACAG GGGTAAATC AAAATGACAG TATTAAGAGG AGATAACTTA GAAATATTAA	720
AAACTATTGA ATCCTCAAGT ATTGATTAA TCTATATGGA CCCTCCTTTC TTTACACAGA	780
AAACCCAAA ATTATCTAAT AACAAAAATA TTATGTATTC ATTCGAAGAT ACGTGGACT	840
CGATTGAGGA TTACAAAGAA TTTTGTCTG TAAGATTAGA AGAATGCAAA AGAGTGCTAA	900
AAAATAGTGG CAGTATTTTC GTTCATTGTG ATAAATGTC AAATCATCAT ATTAGATTAA	960
TTTGTAGATA TATCTTTGGA GTAGATATGT TTCAAAGCGA AATTATATGG AACTATAAAC	1020
GGTGGTCTAA TTCAAAAAAG GGATTATTGA ACAATCATCA AAACATTTAC TTTTATTCAA	1080
AGTCAAAAGA TTTTAAATTT AATACAATTT TTACAGAGTA TTCTTCTACT ACAAATATCG	1140
ACCAATACT AGTGAACGA AAACGAGATG GAACTCTAA AACTATATAT AAGGTTGATA	1200
ATAATGGTAA CTATATTCTA GCAAAAGAGA AAAATGGAGT TCCCCTTTCA GATGTTTGGG	1260



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ATATACCATT TCTTAATCCA AAAGCTAAAG AAAGAGTAGG TTATCCTACA CAAAAACCTA	1320
TTCTGTTATT AGAACAAATT ATAAAGATTG CTAAGTATAA AAATGATATA GTTTTAGACC	1380
CGTTCTGTGG AAGTGGAAGT ACTTTAGTAG CCTCCAAGAT TTTGAATAGA AATTATATGG	1440
GGATTGATTT ATCTGAGGAA GCTATCAATA TAACTCAGCA ACGTCTGGAA AATGTTATAA	1500
AAACAAGTTC AAATTTATTG AATAAAGGAA TCGAAGCATA TAGAACCAAA ACTGAGGAAG	1560
AGGAAAACAT TCTTAAATTA TTACAGGCAA AAATGTTTCA AAGAAATAAA GGAATTGATG	1620
GTTTTTTACC TAAACATTTT CAAAAAAAC CGATACCTAT AAAAATTCAA AAAAATAATG	1680
AATGTCTGAA TGAGAGTATC TCTTTATTAC AGAATGCTAT AAATCCAAA AAATTTGATT	1740
TTGGAGTAGT TATAAAAACT CATTCG	1766

(2) INFORMATION FOR SEQ ID NO: 236:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 748 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 236:

CCGAAATCA AATTCAAACC ACGTCAACGT CGCCTTGCCG TACTCAAGTA CAGCCTGCGG	60
CTAGTTTCCT AGTTTGCTCT TTGATTTTCA TTGAGTATTA AACTAAATTA AATAATATTA	120
GCGCGGAGAA TTTCTAATTC TTCCTTGGTC AAGCGACGCC ATTCCCCTCG TTCTAGGTTT	180
TCATCTAATA CTAAAGTTCC CATAGTCAAT CGTTGCAAGT CCACCACTTC CTTGCCACAG	240
TAGCCACCA TACGCTTGAT CTGATGAAAC TTCCCTTCTG CAATGGTCAC ACGGATTTGG	300
CTTTGATTCT TTTCTGTATC TATGGATACA AGCTCCAGTA TAGCGGGTTG ACAGGTAAAG	360
TCTTTGAGAG GAATACCCTC AGCAAATGTC TCCACATCTT CTTGGGTCAT GATTCCCTTG	420
ACTTGTGCCA GATAAGTCTT GTCCACATGA CGCTTGGCG AAAGAAGAAC ATGAGCCAGC	480
TGACCATCAT TGGTCAAGAG CAAAGACCA TGCCTGTCAA TATCCAAGCG TCCTACTGGG	540
AAACTTCCT TACTCCGCGC CAAGTCATCC AACAAGTCCA GAACGGTTCT GTGCTTGGGA	600
TCCTCAGTCG CTGAGATAAC TCCTTTGGGC TTGTTTCATCA TGTAGTAGAC AAATCTTCA	660
TACTCCAACA CTTGCCCATC AAAGCGAATC TCATCTATTT TTTCATCAAT CTGCAATTTA	720
GCTGATTTTT CTTTTGACC ATTTACAG	748

(2) INFORMATION FOR SEQ ID NO: 237:

1258

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1449 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 237:

AAAAGATTAC ATTGCAACAA TTGAAAATTA TCCAAAGGAA GGCATTACCT TCCGTGATAT	60
TAGTCCTTTG ATGGCTGATG GAAATGCTTA TAGCTACGCT GTTCGTGAAA TCGTTCAGTA	120
TGCTACTGAC AAGAAAGTCG ACATGATCGT GGGACCTGAA GCTCGTGGAT TTATCGTGGG	180
TTGTCCAGTT GCCTTTGAGT TGGGAATTGG TTTTGGCCT GTTCGTAAGC CAGGTAAATT	240
GCCACGCGAA GTTATTTCTG CTGACTATGA AAAAGAGTAC GGTGTCGATA CCTTGACTAT	300
GCACGCGGAT GCCATTAAGC CAGGTCAACG TGTTCTTATT GTAGTGACC TTTTGGCGAC	360
AGGTGGAACT GTTAAGGCAA CTATCGAGAT GATTGAAAAA CTTGGTGGTG TTATGGCAGG	420
TTGTGCCTTC CTTGTTGAAT TGGATGAATT GAACGGCCGT GAAAAAATTG GTGACTACGA	480
CTACAAAGTT CTTATGCATT ATTAATGAAA ACAGTCCCTA GGGCTGTTTT CTCTACACTA	540
GGATATAAAA ATAGACTATA ACTAGTTAGA GAAAACTAT AATTGAAAAC TATATCTTCT	600
TGCAGTATAA TAAAAGGACT AAGTGTTTGA GATTGTGCTT CAAACATATG CAATTATTCC	660
TGAAAGAGTA CAGTTAGGAG AGGGTTATGC CGATTGGAAT TGATAAAAAA TTGCCAGCTG	720
TTGAGATTTT ACGGACAGAG AATATCTTTG TCATGGATGA TCAACGTGCT GCCCACCAG	780
ATATCCGTCC TTTGAAGATT TTAATTTTAA ATCTCATGCC ACAGAAAATG GTCACAGAGA	840
CCCAGTTGTT GCGCCACTTG GCTAATACAC CCCTACAACT GGATATTGAT TTTCTCTATA	900
TGGAGAGCCA CCGTTCTAAA ACAACTCGTT CAGAGCACAT GGAGACCTTC TATAAACTT	960
TTCCTGAAGT CAAGGATGAG TATTTTGATG GGATGATCAT CACGGGTGCT CCAGTTGAGC	1020
ATTTACCATT TGAGGAAGTG GACTATTGGG AGGAATTTAG ACAGATGCTT GAGTGGTCTA	1080
AGACTCATGT CTATTCGACC CTTCATATCT GTTGGGGGGC TCAGGCTGGG CTTTATCTGC	1140
GCTATGGTGT AGAAAAATAC CAGATGGACA GTAAGCTATC AGGTATTTAT CCTCAGGACA	1200
CCCTAAAAGA GGGTCACCTT CTATTTAGAG GCTTTGATGA TAGCTATGTA TCCCCTCATT	1260
CACGGCACAC GGAGATTTCT AAGGAAGAGG TCTTAAACAA GACCAATCTC GAGATTTTAT	1320
CAGAAGGACC TCAGGTTGGG GTTTCTATTW TGGCCAGTCG TGATTTACGA GAAATTTATA	1380
GTTTTGGTCA TTTGGAGTAT GACCGTGATA CTTTGGCAAA AGAGTATTTT CGAGATCGTG	1440
ATGCAGGTT	1449

1259

## (2) INFORMATION FOR SEQ ID NO: 238:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 904 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 238:

TACCCGCTTC TTTCAAGAGT TGGAGCAGGG CTTGTTTGCG ATCTTTTGTC ATAGTTCTTC	60
CTTTTAACGG CGTTTTCGAA GCACTTTATA GACAGCTAGT GCTAATGTAT AGTCTACCAT	120
ACTATGGATA ATTGTACCAA ATCCAAC TAG TACAAATAGA ACATAAAACA TATTTTCTAC	180
ATTGGTACCA GAAGTTGCGT AAAAAACGAC ACAGGCCAAT ACTTCAGCAA GGGCATGAAC	240
AACAGCCAAA ACAAAGTTGA AAATCCAGGA AGATTTTGGT TTATCTAGGG TATCGGGGAA	300
TTTTTG TAGG TAAAGAGCTC CTAAAGCACC AAAAGATATA TGGGAAAAAG CCCGAAAAAC	360
GATAACCATG GGATAGCCAG CCATCAAAAA TCCAAACTA GAGGCTAGGA TGACAAAAAC	420
TGCCATCAAG GCGGACAAGA ACATGGCTAT AAAAATAGCG ATGTGGCTCC CCAAAGTATA	480
GGAAGCAGGT GGAATGACAA TCTTGAAAGG CATAACAATT GGAATCAAAA TCGCAATAGC	540
CGTTAAAAGG GCTGTCATTG TCATAAATTG TGTCTTTTTC CGTGTATTCA CAAGAATCTC	600
CTTTTAACT GCATATACAC TAGTATGGTA CAATAAACCA GACAATAAAG CAAGAATTTA	660
CTTGGGTTTA TAGATCATTT TTTAGTTAAA AGTTATAGTA GATTGAAACT AGAATAGTCC	720
ACCTCTACTT CTAAAACATT GTTAGAAATC GATTTGGCTG TCCTGATCGA TTTGTCCTGT	780
TCTTATTTTCG TTTTACTATA GTAAAGATTT CATTAAAAAG AACTGTATA GAGCAAAATC	840
TCCACCTTCA GGTTCGGAAA GCGGAGATTG TTTTATTATT TTTCCAGGGT TTGTAGTCGT	900
GGA	904

## (2) INFORMATION FOR SEQ ID NO: 239:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 946 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 239:

CACTCAAAACA TGACTTATAT CAAGACGGAT GGAATTCAAG ACGATGCCAA TCGCTTGAAT	60
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1260

CGTAACATTC AGTTTGCTGT TCGTGAATTT GCAATGGCAA CAATCTTGAA CGGGATGGCC	120
CTTCATGGTG GACCTCCTGT ATACGGTGGA ACTTTCTTCG TCTTCTCTGA CTATGTGAAG	180
GCAGCTGTCC GCTTGTGAGC CTTACAAGGA CTTCCTGTGA CTTATGTCTT TACCCATGAT	240
TCAATCGCAG TTGGGGAAGA TGGTCCGACT CATGAACCAG TTGAGCATTT AGCAGGTCTT	300
CGTGCTATGC CAAATCTAAA TGTTTTCCGT CCAGCAGATG CGCGTGAAAC GCAAGCAGCT	360
TGGTACCTTG CAGTGACAAG TGAGAAAACA CCAACTGCCC TTGTCTTGAC ACGTCAAAAT	420
TTGACTGTTG AAGATGGAAC AGACTTCGAC AAGGTTGCTA AAGGTGCTTA TGTTGTATAT	480
GAAAATGCAG CCGACTTTGA TACCATCTTG ATTGCGACAG GTTCAGAGGT TAATCTTGCT	540
GTCTCAGCTG CTAAAGAATT GGCTAGTCAA GCGGAAAAAA TCCGCGTAGT CAGCATGCCA	600
TCTACAGATG TCTTTGATAA ACAAGATGCA GCTTACAAGG AAGAAATCTT TCCAAATGCA	660
GTCCGCCGTC GTGTTGCAGT CGAAATGGGT GCAAGTCAAA ACTGGTACAA ATATGTTGGT	720
CTCGATGGTG CCGTTCTAGG TATTGATACT TCGGAGCCTC TGCCCCAGCA CCAAAAGTAT	780
TGGCAGAATA TGGCTTTACT GTAGAAAATC TTGTAAAAGT TGTTGGAAC TTGAAATAAT	840
CCTAAAAATC AGGGCGTAAG CTCTGGTTTT TCTTACCAGA AAAGTAAGGT ACAATCTTGT	900
AAAAGTAGCT GAAATTTGAT ATAGTAGTCC TATGTAAAAG ACAAAG	946

## (2) INFORMATION FOR SEQ ID NO: 240:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2764 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 240:

CGGGGCTCCC TAGTCTTAG GGAGCTATTT TTGTTTTTTC AAGAAGTTAT CTTCTTGAT	60
TTTATACTCA ATGAAAATCA AAGAGCAAGC TAGGAACTA GCCGTAsTG CTCAAAACAC	120
TGTTTTGAGG TTGTAGATAA GACTGACAAA GTCAGGAACA CATATCTACG GCAAGGCGAC	180
GTTGACGCGG TTTGAAGAGA TTTTCGAAGA GTATTAGTTG TGAATCTGGT GCAGTCGTCC	240
CAGATTATTC TTATTAGTAG GGTCTTGTTT TCTATATCCC CTCGTAGTTA ACAAGACCTT	300
GAGCATTTTA GAAAGAGGAA TCTATGTCTA CGAAATATAT TTTTGTAAT GGTGGTGTGG	360
TATCGTCCAT TGGGAAAGGG ATTGTGGCAG CGAGTCTAGG CCGTCTCTTG AAAAAATCGTG	420
GTCTCAAAGT AACCATTCAA AAGTTTGACC CTTATATCAA TATTGATCCG GGAACCATGA	480
GTCCTTACCA GCACGGGGAA GTTTTTGTGA CAGATGACGG AGCTGAGACA GATTTGGACT	540

1261

TGGGTCACCTA TGAACGTTTC ATCGATATCA ATCTCAACAA ATATTCCAAC GTGACAACTG	600
GGAAAATTTA CAGTGAAGTT CTTCTGTAAG AACGCCGTGG AGAATACCTT GGGGCAACTG	660
TTCAAGTCAT TCCTCATATC ACAGATGCTT TGAAAGAAAA AATCAAGCGT GCCGCTCTAA	720
CGACCGACTC TGATGTCATT ATCACAGAGG TTGGTGGAAC AGTAGGAGAT ATCGAGTCCT	780
TGCCATTTCCT AGAGGCTCTT CGTCAGATGA AGGCAGATGT GGGTGCGGAT AATGTCATGT	840
ATATCCATAC AACCTTGCTT CCTTACCTCA AGGCTGCTGG TGAAATGAAA ACCAAACCAA	900
CCCAACACTC TGTCAAAGAA TTGCGTGGCT TGGGAATCCA ACCAAATATG TTGGTTATTC	960
GTACAGAAGA GCCAGCTGGT CAAGGAATTA AAAATAAACT GGCCCACTTC TGTGATGTGG	1020
CACCAGAAGC CGTTATCGAA TCGTTGGATG TTGAACACCT TTACCAAATT CCACTGAACT	1080
TGCAGGCACA AGGGATGGAC CAAATTGTTT GTGATCATTT GAAATTAGAC GCACCAGCAG	1140
CGGATATGAC AGAATGGTCA GCCATGGTGG ACAAGGTCAT GAACCTCAAG AAACAAGTTA	1200
AGATTTCCTT TGTGGTAAG TATGTGGAGT TGCAAGATGC CTATATCTCA GTGGTCGAAG	1260
CCTTGAAACA CTCTGGCTAT GTCAATGATG CAGAAGTTAA AATCAATTGG GTCAATGCCA	1320
ATGATGTGAC AGCAGAGAAT GTAGCAGAAC TCTTGTCTGA TCGGACGGG ATCATCGTAC	1380
CAGGTGGTTT TGGTCAACGT GGTACAGAAG GGAAATCCA AGCCATCCGC TATGCGCGTG	1440
AAAATGATGT TCCAATGTTG GGAGTCTGCT TGGGAATGCA GTTGACATGT ATCGAGTTTG	1500
CTCGTCACGT TTTAGGTCTT GAAGGTGCCA ATTCTGCAGA GCTTGACCA GAAACAAAAT	1560
ACCCTATCAT TGATATCATG CGTGATCAGA TTGATATTGA GGATATGGGT GGAACCTTC	1620
GTTTGGGACT TTATCCGTCT AAGTTGAAAC GTGGCTCTAA GGCTGCTGCT GCTTATCACA	1680
ATCAAGAAGT GGTGCAACGC CGTCACCGTC ACCGTTATGA GTTTAATAAT GCCTTCCGTG	1740
AGCAGTTTGA GGCAGCAGGT TTTGTCTTTT CAGGAGTTTC TCCAGACAAT CGTTTGGTAG	1800
AAATCGTGA AATTCCTGAA AATAAATTCT TTGTAGCTTG TCAGTATCAC CCTGAACTGT	1860
CAAGCCGTCC AAACCGACCA GAAGAACTCT ACACTGCCTT TGTTACTGCA CGAGTTGAGA	1920
ACAGCAATTA GCAAAATCAG AACCTTTGAG AAAAATCTCA GAGGTTTTTT GCATACGATG	1980
ATATTGCAGT ATATCTGAGG TAGGGTCCT CTGTATGTAC CTGCTACCGT TGAAATCAAT	2040
AGCGACTCCC TCTTGCCCTG TGCTAGTGAA TGGATTTATC AGTATATTGA AATGAAATAA	2100
AATTTGAACA AATTAATTCT GAAAGCCAAA TCAATTTCTA GCAAAGTTTT AGGAACTGGA	2160
TTGTATAGTG AATTGAAATA AGATGTGAAC ATCTCTATCA GGAAAGTCAA ATTAATTTAT	2220
AGAAATATTT TAGCAGTCAA GATGTAATGT TATAGATTCA ATACATTATA CTTTTTTAAT	2280

1262

TTAATCCACT ATAGTAAAT GAAATAATAA CAGGACAAAT CGATCAGGAC AGTCAAATCG	2340
ATTTCTAACA ATGTTTTAGA AATAGAGGTG TACTATTCTA GTTTCAATAT ACTATCCCAA	2400
ATCATTGATA CCTCTCTCAA CTAGATGTAA CTTACAAAAC CCCTGACCTC ATGAGCCACT	2460
TTCTTCCTCC TCATGAGGTC AGTTTACTT TCTGCTGTC CAGTATCGTT TTTCCTCGCT	2520
AGATTTCCTC AAAAGGGCAG ACTCCTCCCT TGGTGCGTCA CACGATTTT TCATCTCGAC	2580
TGTTCTTTAA TGCATCATTA ACGACGCTT TCTTCTAGGT GGTTCATAAG GAACAGGAAG	2640
ATTCAGGTG ACTTTTCTAA TCCTAGAATA AAGTGCTGAA AACAAATCGG AATAGGCATA	2700
GAGACTAGAC AATTTGAGGA GCTGCTGCG TCCTGTTGGA ACACATTTT CCACCACGTG	2760
AAGA	2764

(2) INFORMATION FOR SEQ ID NO: 241:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1682 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 241:

CCGTTTTTTT CATGTTCAG TACTACAACT TACGTTGTAG CGCCCTGCAC ATTGGTTCGT	60
CTTGTCAGT TTTCAAAGT CTTGTCACT TGCTTCTCTC AAGCGACAAC TATATTAGTA	120
TATCACAAC GCTTCGCTT GTCAACACTT TTTGAAGAT TTTAAGTTT TTTTAACTT	180
TTTTTCATCA AGTGGTCCTG ACGCAACATA CCATAGTCCG TACGGGATTC GAACCCGTGT	240
TACCGCCGTG AAAAGGCGGT GTCTTAACCC CTTGACCAAC GGACCTGAGT TGTATTTTT	300
AACTCTTACT ATTATACAGT CTTTCAAAC TTTGTCACT ACTTTTTTAA ACTTTTTTTA	360
TTAATTTTAC AACAGCTTCA GTTCGAGCTG TATGTGGGAA CATATCGACC GACTGGATAT	420
AATGAAGATC ATAGACTTCT ACTAAGCGTA CCAAATCACG AGCCAAGGTC GAAACATTAC	480
AAGAAATATA AACCATTTT TCTGGTACAT AAGTAAGAAT AGTATCTAAT AACTTATCAT	540
CCAGACCTGT ACGTGGTGGG TCAACAATCA AAGCATCTGC TCGGTAGCCT TCCTTGTAAC	600
AACGAGGAAT AATCTCTTCT GCCGTCCAG CTTCATAATG AGTATTGTCA AATCCCATTC	660
TTTTAGCATT TCGCTTGGCA TCTTCAATAG CTTCTGGAAT AATATCCATA CCTCTGAGTG	720
TTTTTACTTT CTTTGCAAAG GCAAATCCAA TCCTTCCAAC TCCACAATAA GCGTCAATCA	780
AATGGTCTTC TTTATCAACA TCCAGCGCTT TTAAGCTTC GCTATAGAGG ACTTCTGTTT	840
GCTCAGGATT TAGTTGATAA AAAGCTCGAG GGGATAGTGA AAATTCATAA TTGAGTACAC	900

1263

CTTCTTGAAT ACTCTCTTGC CCCAGATAA TCTCTGTCTT TTCACCATAT ATCTCACTGG	960
TTTTAGCTGT ATTTGTATTA ACAGCTACTG TCACAACTTC TGGGAAATCT TTAACCAACT	1020
CTTTTACCAA TTGAGTTAAA TTAAGCTGGC GGTTTGTAAC AATAATAATC TGAACCTGTC	1080
CGGTCTTTCT CGCGCGTCGG ACCATAATAG TACGGACACC TAGAACTTTT CTCTCATCCG	1140
TGATTGGAAT CTGGTGATAA GTAAGTAATT CTGCTAAGCG ATTAGCAATC ACTTGGGTTT	1200
CCTTATCTTG TACCAGGCAG TCTTTCAACT CTACTAAATA GTGAGAGTTT TGTGCATATA	1260
AGCCCGCCTT GACCTGATTT TTAAATTTTC GAGTCTGAAA TTGTAACCTA GCTCTGTAAT	1320
ATTTTGGTTC CTGCATTCCA ATAGTTGGAC GAATTTTATA ATTTTCATAT CCTGCAGGAG	1380
CAAATTTTTT CAGCGCTTGA TGAAGTAAGT CCGTCTTGAA CTCCAGCTGC TTATCATAAT	1440
GCAGGTGCAT GATTTGGCAG CCTCCGCATT CATTATAAAT AGTACAAGAT GGCACAATTC	1500
GAAATTTAGA CTTCTTGTG ACCTTCAGTA ATTTTGCTTC AACAAAGTTG CGTCTAATAG	1560
AAGTAATCTG ACAATAGATA TCTTCGCCTT TGAGAGCTCC TGGTACAAAG ACTAATGTTT	1620
TTTGGTAAAA GCCGATTCCC TCACCGTTAA TTCCCATGCG CTTGATTTTT AATGGTATTT	1680
TT	1682

(2) INFORMATION FOR SEQ ID NO: 242:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2524 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 242:

TTAACTTTGG TCAATTCMTT AAAGTCATCC TCTGTAAGCA TGTCTAACCA TTGATGTTTC	60
CCTTTATTGC TAAAATCACC AATTCGACT ACAGCTATAT CTAAATCTTT CCAACTATTT	120
TTCAAATTTT CAAAATATCT TGATTGCAAA ATACCATCTG CTAACAATTT ATTTTCTTGC	180
ACAATCGTTG CATTCATAAA TGTACACTCT CCATGAAATT TTCTAGACAT TTCATAAATC	240
AGTGTATTCA CATGGTATTT AGCGTGTATG TGA CTAGGAC CACCTGCTAG AGGATAGAAG	300
TGAACATTTT GGACACTTTT ACTGTGAATT AAATCTACTA AATTACTTAA ACTTTTCCCC	360
CAAGAAAAGC CAATTTTCAT ATTATCATCA ATTAGATTCC TAAGGACGCC TGCTGCAACT	420
TGAGAAATTC TTTAGATAA AATTGTTGGA GTATCATCAA ATTCATTTGG AATAATTTCT	480
AAACTTTCCA AACTGTATTT TTCTTTTACA TAATTTTCCA ACTTAAACAT ATTGGTATCA	540

1264

AAATTCTCTA TTCAATTTT AACAAATCCT ACATTCCTTG CTTCTGTAA CATTCTACTA	600
ATAGAGGTTT TATAAATCC TAATTTTGCT GCTATTTGTG ACTGATTTAA GTTTTCAATA	660
TAATACAGAT AAGCAATTT AGAAAGCAGT TTATTCCTAT CTTGATTCAT AACTTTAACC	720
TCTTACGAAA CTACCTTAAC CATTATCCCA GCATTTTCTA ATGTAGCTAT ATTTTGTMTA	780
GAAAGTTTTT CGTCTGTAT TACTTCATAG ACTTGACTTA AAGCAAATCT TCTTACTGTA	840
CCTCTTTTAT CAAATTTACT TGAGTCAGTT AGGACAATGA CTTTATCCGA CACTGCTGAA	900
ATATATTGAA CTACCTCACT GCGCATTAAT TCTTTTCCGG TAAAGCCCAT CTCTTTATCG	960
TAACCATCTG TCCCAACAAA AGCTTGACAC ACATGAAAAG TCTGTATCAT TTCTTTTAAT	1020
AAAGGTCCTA CAGTCACCTG TGAATCTTTC TGAAACTCAC CACCAAGAAC AATAACACGA	1080
CATGAATCAT AAGCTCTCAC AAAATTTGCT ATAAAAACG AATTTGTTAC AATCGTAACA	1140
TTTCTTTTTT GCTTGCAAAT TTCCTCAGCA AGTAAAGCAC AGGTCGATCC AGATTCTATC	1200
ATTATTGTTT CATTATCTGA CACCAATTTT ACTGCTTCCT GAACAATTTT TCTCTTAGTT	1260
TCATAATTAA TTGACAAACG TACATTTAAG TCATCTCCAC TATTTAATAC AGCATATCCA	1320
TGCTCTCTGT GTAATAAACC TTTTGACTCT AATTTATCTA AATCTTTTCT AATCGTTACT	1380
TTGATACAT TTAATTTTTT CGATAATGTA TTAACGTCGA TCTTTTCATA TTCTGATACT	1440
AATTTAATAA TTTGTTCCAA TCTTTTCATT TTACACCTCC GTTTTATTCT ACCAAAATAA	1500
AAAGCAAAAA ACAACAAATT AACCTTTCGT TCGTAATTGT TTTTCTTTCC TTTTGTGAT	1560
AGGATAGACT TATGAAGAGG AGGAACTCTT ATGGAAATAT CTAAAGGAAT TATTTTAAAT	1620
ATTCAACACT TTTCAATTCA TGACGGTCCG GGTATTTCGT CAACTGTTTT TTTAAAAGGA	1680
TGTCCTCTGC GCTGTCCATG GTGTTCTAAT CCTGAATCTC AAAGAATGAA ACCTGAAAAA	1740
ATGAAAGATG CTCAACGAGA GAAATTCACC TTAGTCGGTG AAGAAAAGAC TGTAGAAGAA	1800
ATTATTACAG AGGTATTAAA AGACAAAGAA TTTTACGAAG AATCCGGTGG AGGTTTAACT	1860
TTATCAGGAG GTGAAATATT TGCTCAGTTT GAATTTGCTA AAGCCATCTT AAAATCAGCT	1920
AAAGAACATC ACATACACAC TGCCATTGAA ACTACTGCCT TTGTTGATCA TGAAAAATTT	1980
ATTGATTTAA TTCAATATGT GGATTTTATC TACACAGACC TAAAACATTA TAATTCTATA	2040
AAACATAAAA AAGTGACTGG GGTTTTAAAT CAAATGATTA TTA AAAACAT TCATTATGCT	2100
TTTTCACAAA ATAAAACTAT CGTTTAAAGA ATCCCAGTTA TTCCTAATTT TAACAATAGT	2160
TTAGAGGATG CAGAAAAATT CGCTACTCTA TTAACTCAT TAAATATCGA CCAAGTTCAA	2220
CTACTCCCTT TTCATCAATT TGGTGAAAAC AAATATCGTT TATTAATCG GAAATATGAA	2280
ATGGATGGAA TCAACGCACT TCATCCWGAA GATCTTATTG ATTATCAAAA GGTATTTCTG	2340



1265

AACCACCATA TTAATTGTGA TTTCTAGTTT ATTCCTTGA AATGCTCTAG CTATTTGCAG	2400
ATAACAAGCA TCTATAATAC ATACTTAAC TTTCAAAAGG TTTAGCTAAA AAATTTTAGC	2460
CAAACCTTTT CTATTTTACC TTGCTCTAGA ATTTTAAAC TGCTATACTT ATCACAAAAA	2520
AACG	2524

(2) INFORMATION FOR SEQ ID NO: 243:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2359 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 243:

CGTGCTTGGG GGCTTGTGGT CAAAAGGAAA GTCAGACAGG AAAGGGGATG AAAATTGTGA	60
CCAGTTTTTA TCCTATCTAC GCTATGGTTA AGGAAGTATC TGGTGACTTG AATGATGTTT	120
GGATGATTCA GTCAAGTAGT GGTATTTACT CTTTGAACC TTCGGCAAAT GATATCGCAG	180
CCATCTATGA TGCAGATGTC TTTGTTTACC ATTCTCATAC ACTCGAATCT TGGGCAGGAA	240
GTCTGGATCC AAATCTAAAA AAATCCAAAG TGAAGGTCTT AGAGGCTTCT GAGGGAATGA	300
CCTTGAACG TGTCCCTGGA CTAGAGGATG TGGAAGCAGG GGATGGAGTT GATGAAAAA	360
CGCTCTATGA CCCTCACACA TGGCTAGATC CTGAAAAAGC TGGAGAAGAA GCCCAAATTA	420
TCGTGATAA ACTTTCAGAG GTGGATAGTG AGCATAAAGA GACTTATCAA AAAATGCGC	480
AAGCCTTTAT CAAAAAGCT CAGGAATTGA CTAAGAAATT CCAACCAAAA TTTGAAAAAG	540
CGACTCAGAA AACATTTGTA ACACAACATA CAGCCTTTTC TTATCTAGCG AAGAGATTTG	600
GGCTTAATCA ACTTGGTATT GCAGGTATCT CTCCTGAACA AGAACCAAGT CCACGACAAC	660
TAACAGAAAT TCAGGAATTT GTTAAGACCT ATAAGGTAA AACGATTTT ACAGAAAGTA	720
ACGCTTCTTC AAAAGTAGCT GAAACTCTTG TCAAATCAAC AGGTGTGGGT CTTAAACTC	780
TGAATCCTTT AGAGTCAGAC CCACAAAATG ACAAGACCTA TTTAGAAAAT CTTGAAGAAA	840
ATATGAGTAT TCTAGCAGAA GAATTAAAGT GAGGAAAGAA TGAAAATTAA TAAAAAATAT	900
CTAGCAGGTT CAGTGGCAGT CCTTGCCCTA AGTGTGTTGTT CCTATGAGCT TGGACGTTAC	960
CAAGCTGGTC AGGATAAGAA AGAGTCTAAT CGAGTTGCTT ATATAGATGG TGATCAGGCT	1020
GGTCAAAAGG CAGAAAACCT GACACCAGAT GAAGTCAGTA AGAGGGAGGG GATCAACGCC	1080
GAACAAATTG TTATCAAGAT TACGGATCAA GGTATGTGA CCTCTCATGG AGACCATTAT	1140

1266

CATTACTATA ATGGCAAGGT TCCTTATGAT GCCATCATCA GTGAAGAGCT CCTCATGAAA	1200
GATCCGAATT ATCAGTTGAA GGATTCAGAC ATTGTCAATG AAATCAAGGG TGGTTATGTC	1260
ATTAAAGGTAA ACGGTAAATA CTATGTTTAC CTTAAGGATG CAGCTCATGC GGATAATATT	1320
CGGACAAAAG AAGAGATTAA ACGTCAGAAG CAGGAACGCA GTCATAATCA TAACTCAAGA	1380
GCAGATAATG CTGTTGCTGC AGCCAGAGCC CAAGGACGTT ATACAACGGA TGATGGGTAT	1440
ATCTTCAATG CATCTGATAT CATTGAGGAC ACGGGTGATG CTTATATCGT TCCTCACGGC	1500
GACCATTACC ATTACATTCC TAAGATGAG TTATCAGCTA GCGAGTTAGC TGCTGCAGAA	1560
GCCTATTGGA ATGGGAAGCA GGGATCTCGT CCTTCTTCAA GTTCTAGTTA TAATGCAAA	1620
CCAGCTCAAC CAAGATTGTC AGAGAACCAC AATCTGACTG TCACTCCAAC TTATCATCAA	1680
AATCAAGGGG AAAACATTTT AAGCCTTTTA CGTGAATTGT ATGCTAAACC CTTATCAGAA	1740
CGCCATGTGG AATCTGATGG CCTTATTTTC GACCCAGCGC AAATCACAAG TCGAACC GCC	1800
AGAGGTGTAG CTGTCCCTCA TGGTAACCAT TACCACTTTA TCCCTTATGA ACAAATGTCT	1860
GAATTGGAAA AACGAATTGC TCGTATTATT CCCCTTCGTT ATCGTTCAAA CCATTGGGTA	1920
CCAGATTCAA GACCAGAAGA ACCAAGTCCA CAACCGACTC CAGAACCTAG TCCAAGTCCG	1980
CAACCAGCTC CAAGCAATCC AATTGATGAG AAATTGGTCA AAGAAGCTGT TCGAAAAGTA	2040
GGCGATGGTT ATGTCTTTGA GGAGAATGGA GTTCTTCGTT ATATCCCAGC CAAGGATCTT	2100
TCAGCAGAAA CAGCAGCAGG CATTGATAGC AAAGTGGCCA AGCAGGAAAG TTTATCTCAT	2160
AAGCTAGGAA CTAAGAAAAC TGACCTCCCA TCTAGTGATC GAGAATTTTA CAATAAGGCT	2220
TATGACTTAC TAGCAAGAAT TCACCAAGAT TTAAGTGATA ATAAAGGTCG ACAAGTTGAT	2280
TTTGAGGCTT TGGATAACCT GTTGAACGA CTCAAGGATG TCTCAAGTGA TAAAGTCAAG	2340
TTAGTGAAG ATATTCTTG	2359

## (2) INFORMATION FOR SEQ ID NO: 244:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1052 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 244:

TTCTTTCTGC TATAATCGTA TAAATACTT ACTTTAGGAG TTCTTATGAA AGTTGTAAAA	60
TTTGGAGGTA GTTCTCTTGC CTCTGCTAGT CAATTAGAAA AAGTTTAAAA CATCGTCAAA	120
AGCGATTGAG AGCGTCGTTT TGTAGTCGTT TCTGCGCTG GTAAACGCAA TGCTGAAGAT	180

1267

ACTAAGGTTA CGGATGCCCT GATTAAATAC TACCGCGACT ATGTTGCCGG TAACGATATT	240
AGCAAGAACC AAAGCTGGAT TATCGACCGC TATGCTGCTA TGGTTAGTGA ATTGGGACTA	300
AAACCAGCTG TGCTAGAAAA AATTCTCTAA AGCATTACAG CCTTGGCCAC TCTTCTATT	360
GAAGAAAATG AATTCTCTA CGATACTTTC CTAGCAGCCG GTGAAAATAA CAATGCCAAA	420
TTGATTGCTG CCTACTTTAA CCAAATGGT ATCGATGCAC GCTATATGCA CCCTAGAGAA	480
GCTGGGATTG TGGTCACAAG TGAACCTGGT CACGCTCGCA TCATTCCATC AAGTTATGAC	540
AAGATTGAAG AATTGACAAA CACCAATGAA GTCCTTGTC TTCCTGGTTT CTTGGTGTC	600
ACTAAGGAAA ATCAAATCTG TACTTTCTCA CGTGGAGGTT CTGATATTAC AGGTTCTATC	660
ATTGCTGCTG GTGTCAAAGC TGACCTCTAT GAAACTTTA CGGACGTTGA TGGTATCTTT	720
GCAGCCCACC CTGGTATTAT CCACCAACCA CACTCGATTC CTGAGTTGAC CTACCGTGAA	780
ATGCGCGAGT TGGCCTATGC AGGCTTCTCA GTCCTTCATG ACGAGGCTCT TCTTCTGCC	840
TACCGTGGA AAATTCCTCT GGTATCAAG AATACCAACA ACCCTGACCA TCCAGGTACT	900
CGTATCGTTC TAAACACAG TAATGATGAA TTTCCAGTTG TGGGAATTGC TGGTGACTCA	960
GGCTTTGTCA GCATTAACAT GTCGAAATAC CTCATGAACC GTGAGGTTGG ATTTGGCCGC	1020
AAGGTTCTGC AAATCCTGGA AGAACTTAAC AT	1052

(2) INFORMATION FOR SEQ ID NO: 245:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 855 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 245:

CCCTCGAAAA CTAAGCCGAT GAAGTCAGAA CACTTCAATC CTGTTCTGTA CTGGTGGGAA	60
AATCGTGAAG AGATTCTGGA AGGTAAGTTC TACAAATCTA AATCATTTAC ACCTAGTGAA	120
TTGGCTGAGT TGAATTATAA TTTAGACCAG TGTGACTTTC CAAAAGAGGA AGAGGAAATC	180
TTAAATCCCT TTGAGTTGAT TCAGAATTAT CAAGCGGAAA GAGCAACTTT AAATCATAAG	240
ATTGATAATG TATTAGCTGA TATTTTGAG TTGTTGGAGG ACAAATAATG ACACCAGAAC	300
AACTTAAAGC AAGTATTCTC CAAAGAGCGA TGGAAAGGAA ATTAGTGCCG CAAATCCCA	360
ATGACGAACC TGCAAGTGAA TTATTAAAGA GAATTAAAGC TGAAAAAGAA AAATTTATCA	420
GTGAAGGAAA AATCAAACGA GATAAAAAGG AAAGTGAAGT ATTTCTGGT GATGATGGGA	480

1268

AACATTATGG GAAGTTTGCT GATGGAAGCA CTCAAGAAAT TGATGTTCTT TATGATATTC	540
CTGATACTTG GGAGTGGGTG AGGATAAAAT CAATTATTG GAATTTTGGG CAAAATAAGC	600
CAGAGAAATC CTTTAGGTAT ATAGATACGT CTAGTATTGA TAGAAAAAAG AACATAATCA	660
ACTACAAAAA TCTACAATAT CTTTCACCTG AACAAAGCGC TTCCCGTGCT AGAAAATTAG	720
TTTCGCAGAA TAGTGTCTTA TTTTCAACAG TTAGACCATA TCTAAAAAAT ATTGCTGTAG	780
TTAGAGAACT TAAAGAGTAT TTGATAGCTA GTACAGCATT TAATGTTTTG GGATACCTTA	840
CTTAACGAAA CATAT	855

## (2) INFORMATION FOR SEQ ID NO: 246:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 660 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 246:

TTTAGGAAGG CTATCCGTAA TTTTACAAAG GATTTAGATA TTACAGAGGA ACATTTAGAT	60
ATTATCAAAA GAGAGATGTT TGGCGAATTT TTCAGTAGCA TGAAGTCTCT TGAATTTATT	120
GCAACGCAAT ATGATGCTTT TGAAATGGT GAGATAATTT TTGATTTGCC GAAAATTTTA	180
CAGGAAATTA CTTTAGAGGA TGTCCTTGAT GCTGGACATC ATTTAATAGA TGATGGTGAC	240
ATAGTTGATT TTACAATATT CCCATCGTAG TAACCTATTA TAATAGACAC TAGAAAGAAG	300
GGATGACAAG TATGAGAAAA AAAACAATTG GAGAGGTTTT ACGATTAGCT AGAATCAATC	360
AGGGATTGAG TTTAGATGAA TTGCAGAAAA AGACAGAAAT CCAGTTAGAT ATGTTGGAAG	420
CAATGGAAGC AGACGATTTC GATCAACTTC CAAGTCCTTT TTACACGCGT TCTTTCTTGA	480
AAAAATATGC ATGGGCTGTT GAGTTAGATG ACCAAATTGT TTTGGATGCT TATGATTCTG	540
GGAGTATGAT TACTTATGAG GAAGTAGATG TTGATGAAGA TGAGTTGACA GGTCTAGAT	600
GTTCAAGTAA GAAAAGAAG AAAAAACAT CATTTTACC TTTATTTTAT TTTATCCTGG	660

## (2) INFORMATION FOR SEQ ID NO: 247:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1805 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 247:

1269

CCGGTTGCAC AGGATCGTGC ATAGTCAACT CTTCAAGTAT AGCATATCTC CTATTTTCTT	60
ACAAGTAATA ACACCTAAAA TGAAGCTTTT TCTTTTACTT TTTTCTGCCA AGAGGCCAAAA	120
AGCATGCTGA GGTAAAAAAC GCTCATCATA ATAGGAACAC CAAGAATGGT CTTTTCATGA	180
TAGAAAATCG TCAAATAGGC TGAAAAGACA ACGCCAAGGA CAAAACACT AAGCAGGCTA	240
ACAAATATGA ATCCTTCACG CAAAAAAGGA GTGTGCTTGG TTCGGAAATA ATCTCCAAAA	300
GCCAGCATGG TCCGTTTGAT ATTCCCTGTC ATAAAAGCGT TATTATAGGC AATACCCGAC	360
ACTTCTCCAA AAGCAGTTGT CACCAGTCCC ATACAGAAGG CCAAGGGCGG CACTAGATAG	420
ATATTATCCA CAGTTTGCGG CACAAAAGCA ATAATGATTG ATAAGATTGC CAAGGGAATC	480
AAGGACAGAA TAGGTTTTTT CACAATTCTC AATTTTTCCT TATAAATCGT TAATAAAAAG	540
ACTCCCATCA TAAACGCTAG CAAGGTGAGA ACCTTGTCCT TAACATCCGA AACATTATTT	600
TTAATTAATT CTAAGTAAAG AAAGACAACA TTTCCAGTTT GTCCAGCTAC AAGGGTATTC	660
CCGCGAACAA TAAAAGTGTA AGCATCCACA TATCCAGCAC AAAACGTCAA AAAAAGTGCT	720
AACCTTTTAG ACTGACGTGA TATTTTCTT ATAGGTAATA ACCTCATTTT ACCTCCCAT	780
GTATTTTCTC TTAGAAATAT TGTACCATTT TCTTTCTAAA AAATCGTAGG CTACCATTTA	840
GATTTTACTA TTAGCATAAA AATAATAATA GACAACTATT TATCCAAAA TAGATAGATG	900
TAACATGTTT GCAAACAAAG CATACGAACC TTTAGTAAAA TCATTTCCAT GAAACTAGAA	960
TAGAGCCCTC TTAGCAAAAA TCATTATTTT AATTATTTC TAATCACTCC TTGACATAAA	1020
TAATCTCAC CAATAAAGA CTATGTCTTA AAAAAATGGT ATAATAAAAT CAATACTTGG	1080
GCTTGATGGC TATGCTACTA ATAACAATTA GGAGAGAAAA TCAGGCACTT GTTAACAACA	1140
AGGATTATCC CCTTGAGATG AAAGGAACTT TAGAAATCTT ATGATGAACA TGCAAAACAT	1200
GATGCGTCAA GCACAAAAAC TTCAAAAACA AATGGAACAA AGCCAAGCTG AACTTGCTGC	1260
TATGCAATTT GTTGGCAAAT CTGCTCAAGA TCTTGTCCTAA GCGACCTTAA CTGGCGATAA	1320
GAAAGTTGTC AGCATTGATT TCAATCCAGC TGTGCTTGAC CCAGAGGACC TTGAGACTCT	1380
TTCTGATATG ACCGTTCAAG CCATCAACTC TGCTCTTGAA CAAATCGATG AAACACCAA	1440
GAAAAAATG GGTGCTTTTC CTGGGAAATT ACCTTTCTAA AAACAAGGAG CTAGAACAAT	1500
GCTTGTCGAT AACAAAGGCT AAGAAAGGTG CAAAAATGAC TCTATAATAT TTGTAGTGGG	1560
TAAATCCCCT ATGGATATTA TGGAGCCTAT TTTTGTGTAG AAAAAAGTCC CATATGACCT	1620
ATAATGAAAA GCGACAAAAC AACTCATTAG AAAGAATCAT ATGGAACAAT TACATTTTAT	1680
CACAAAATTA CTAGACATTA AAGACCCTAA TATCCAGATT TTAGACATCG TCAATAAGGA	1740

1270

TACACACAAG GWAATCATCG CCAAACCTGGT CTATGAAGCT CCATCTTGTC CTGAGTGCGG 1800  
AAGTC 1805

## (2) INFORMATION FOR SEQ ID NO: 248:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2516 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 248:

CTGCATCTAG TTTGTTTCTC CCTACAGTTT TAGCTAGACA GATTGGAGAT TATGATTAA	60
CGTCGCCGCG TTGGGGTTCG GATACAATA GTGAGCTTGA GAAAGAAAAC TCCTCTGCTG	120
GAATTAATAA TAATGACAGC ACTGGTGGCG GTAAAAGGTT AAATACCTCT ATTCGTAGCG	180
CCTATAGTGG GTCAGATATT ACCCCGGTAT ATTCATTGGG GTCTGGCTCT AGGATTGTCA	240
TGTACTATAA TGGAGGTGGT GACAATTATA TTGGTTCTGG TACTAGATTA GCTATGGCGC	300
CACAATTTGG AAATCATGTA AGAATTCATA CTTCAGGTTT TTGGAATCCA GATTCTTATT	360
AACTTACTTG TCAGAGTAAG CCTTAAAGAT GGTGATTGT GGGTGTAGCA TGAAAAAGA	420
ATGCTACACC CTATTTTAT TATAAGGAGG AGTAAGGATG GAATTTTCA TTTGTAATCT	480
TGTACGAGTC GTTCAATCAC CTCGATTTTA TATGTCTTTA TTTTGGACCC TTCTTTGCAT	540
GAGTTTAGGA AATTTCCTTG CTTTCAATGG TATTTATAAA ATTGAAGGTT TATCGATTTT	600
TTTTGCCGCT TCTCTATTTC GAGGATTTTC ACCGATTAGC CTAGTAGCTG CACTTATCTG	660
TACACTGCCC TATTCTAGTC AGATAATAGA GGATGCTGAG AGTCATTTTC TAACAGCACA	720
ATTGTGTCGA ATTTCTAAAA AGAAGTATCT GGCTATTGTG GGTAGTACTG TAATTATTTT	780
TTCTTTTCTA GTCTTTTTC TCCCCTATTT ATTATTATTA GGAATTAATC TTTTAGTGAC	840
TCCTTATCAG GAAATTTATA TTGGAGATTA TAGTGGTGCC TTAAGAAGAT TATTTGATTC	900
CAATCAGTTT CTCTATAGTC TTGTAACGAC TCTCTGGTAT GGAGTTTGGG GCGCTGTGTT	960
CTCTATTTT GGACTAGCTA GTGCTTTGCT AGTGAAGAAA AAAATAGGAG CTATTTTCAT	1020
CCCAGTTGCC TATATGATGG TTGGTGGTAT TTTTGGGCT ATTTTAGGGC TATCTTACTT	1080
AGAACCTGTG ACAACGCTAG CTTTGGGATA TCAGAAAGAT ATCAGTCTTT CCTTAGTTAG	1140
TGCTCATCTT GCTTTTATTT TATTTGTTAG TTGTTTGGTT GTTTATGGTA CATTTTCTT	1200
ACATTCAGAG GACTATGTAT AATGAAACAA TTTGTTCAAT TTTATAAAAA AGATTTCTTA	1260
GCAGTATTGG TTTATTTTAT ATTACTGCTA TCCTGTGTTT TATCTAGTAC AGTATATTTA	1320

1271

TTGCGCtGTC GCCAATATTC AATCCATCCA AATGTATTAG AATGGATCTT AGTTTTACTT 1380  
CAAGATATGA CGACTGGAGT ATATTGCTTT CCGTTCACAT ATATATTGTT CTTTTTTTAT 1440  
TTGATGAATA ACTATTTTAA TAGGTTGGAG TGTCGCATTC GTCTGAAATC AATTAAGCAC 1500  
TTTACCAGTT TTAGTTTCAA ATTAGCAGCT CTTAGTACGG GGATTGGAC GCGGACTTTA 1560  
TTTTTATTGA TTTTCTAAT TGCATTTAGT AATGGTTTTA GCTTCTCTTT GGAGATAAAG 1620  
GAGGTTGATT TTTTAAGAGA ATTTTATGGT ATAAGTATTG CAAACAATGC TACTTTCTTT 1680  
ATAGGATTTT TTTTCTCTTA TATAGCATAC TATTTCTTTT TATCCTTACT TACTATTAGC 1740  
AGTTTTTCTT GGTTTAAAAA ATCAAACATG AGCTTAGTAT TTCTGTTTAC TTTTTTATTT 1800  
GTAGAATCCT TATTCTGGAT TTATCAGTTG GACAATGGGA TAATTGGATT ATTGCCAATT 1860  
TTTCAGTATA TGGTAAATTC CAATCCGTAT GCATTGATTT ATTGGCTTAC ATTACTATCT 1920  
ATCATAATTC CATTGACTGT ATTTTCTGTT CATAGAAACT GGAGGAGAGT GTAAAAGTTG 1980  
GAAATGGGAA AGTTAAGTAG TCACATGTGG AGGTGAATC AGATAATCTA TACCAAGTAC 2040  
TTTTGGGGTT ATGTTCTTTT TTGGATATTG ATTTGTTTAG GATTATGTA TTGGTTAGAA 2100  
GGAAATGATA GACTTGTTAT AGAAATTTTA AAAGGGCCTA ATCTGAGTCA AAACCTTTTT 2160  
TTAGTCTTAT CTATATGGTT GCTTCATTGG TTTATTATTC ATACATTTTT TCTAGCAGTT 2220  
GTATATCGTA GAAGAGCATC CGATTCTTTT ATGGAAGTGA TTCGATTTTC TTCTATTAAG 2280  
CTCTGGATTA GGTATCAGAT TTGGACCTGT TTTCTTTATG GACTCATTTT AATCATGGTA 2340  
AAAGTTCTAG TGATTCAATT TATGTTACAG TTACCAAACCT GGGATATAGG AGTTTTGTTT 2400  
ATAGTTGATT CTTTGAATGC TTGTGTGTTA GTCTTGTTTT GCTTTATGTT ATACGCACTA 2460  
GGAGCGAATG TACAAATGAA CTTTGCTTGC GTTAGTTTCT TTTTACTCAT GATTGG 2516

(2) INFORMATION FOR SEQ ID NO: 249:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 1364 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 249:

CGGTGTTTTT TTGTAAATTT TCTAGCACTT GTATGGTAAA ATAGATACAG GTGTTCAATTA 60  
AACTAGACTA AAAACCTATT TAAGCAGGCA AAATGAAGAA ATACCAACAA TTATTTAAGC 120  
AAATCCAAGA AACCATTCAA AACGAGACTT ACGCTGTCGG AGATTTCCTT CCTAGCGAGC 180

1272

ACGACCTTAT GGAGCAATAT CAAGTGAGTC GTGATACCGT CCGAAAGGCC TGTCTCTCCT	240
CCAAGAGGAA GGATTGATCA AAAAGATAAG AGGGCAAGGT TCTCAAGTCG TCAAAGAAGA	300
AACCGTCAAT TTCCCTGTAT CCAACCTAAC CAGCTACCAA GAACTAGTTA AAGAACTTGG	360
ACTGCGCTCT AAAACCAACG TGGTCAGTCT GGACAAGATT ATTATTGATA AAAAATCCTC	420
ACTGATAACC GGTTCCTCAG AGTTTCGGAT GGTTCGGAAG GTGGTCCGCC AGCGTGTGGT	480
GGATGATCTG GTATCCGTTT TGGATACGGA CTATCTGGAT ATGGAAGTCA TCCCAAATCT	540
CACTCGCCAA ATTGCTGAGC AGTCTATCTA TTCTTATATA GAAAATGGCC TCAAACCTCT	600
TATTGATTAT GCTCAGAAGG AAATCACCAT TGACCACTCA AGCGACCGAG ACAAGATTCT	660
CATGGACATT GGCAAAGACC CTTATGTCGT TTCGATTAAA TCAAAAGTCT ATCTCCAAGA	720
CGGACGCCAA TTTCAGTTTA CCGAAAGTCG CCATAAGTTA GAGAAATTTA GATTTGTAGA	780
TTTTGCAAAA CGCAAGAAAT AAAAGACTGA GACACCAGAT CTCAGCCTTT TTCGGCTCTA	840
TAATATTTGT AGTGGGTAAC CCCCCTATGG ATATTATGGA GCCTATTTTG TGTAGAAAAA	900
AAGTCCATA TGACCTATAA TGAAAAGCGA CAAAACAACT CATTAGAAAG ATTCATATGG	960
AACAATTACA TTTTATCACA AAAGTCTCG ATATTAAAGA CCCAAACATC AAGATTCTAG	1020
ACATCATCAA TATGGATACC CACAAAGAAA TTATCGCTAA GCTGGATTAT GAGGCTCCAT	1080
CTTGCCCTGA TTGTGGAAGT CTAATGAAGA AATATGACTT TCAAAAACCG TCTAAGATCC	1140
CTTACCTCGA AACAACTGGT ATGCCTACTA GAATTCCTCT TAGAAAGCGT CGTTTCAAGT	1200
GCTATCATTG TTCTAAAATG ATGGTCGCTG AAAGTTCTAT CGTCAAGAAG AATCATCAAA	1260
TTCTCTGTAT TATCAACCAA AAAATGCGC AAAAGTTGAT TGAGAAGATT TCTATGACCC	1320
ATATTGCTCA TCAGCTGGCC ATTTCAACTT CAACTGTCTAT TCGG	1364

## (2) INFORMATION FOR SEQ ID NO: 250:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1227 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 250:

CCATGAAGAC CGCTTGAAT TGGAATGGCA CAAGTCTTTG TTGAATGGTC TATTCCCATT	60
GACAATCGGT GGAGGAATTG GACAATCTCG TATGGCCATG TTCCTACTTC GCAAGAGACA	120
CATCGGAGAA GTGCAACAA GTGTTTGGCC TCAAGAAGTC CGCGATACTT ACGAAATAT	180
TTGTAGAGA ATCGAACCGC AAGGTTCCGT TTTCTTTCTC TTTTGTCTA TAATTTGGTA	240



1273

TAATAAACAG TATGAAAATC GTATCAGGAA TCTATGGGGG ACGTCCCCTC AAGACACTAG	300
AAGGCAAGAC GACAAGACCT ACTTCGGATA AGGTTAGGGG AGCCATTTTT AACATGATTG	360
GTCCTTACTT TGAAGTGGGA CGAGTCTTGG ACCTTTATGC AGGTAGTGGT GGTTTATCTA	420
TCGAAGCAGT ATCGCGTGGC ATGTCCAGTG CTGTTTGGT GGAGCGAGAC CGTAAGCTCA	480
GACCATCGTG GCTGAAAATA TCCAGATGAC CAAGGAAGTT GGAAAATTTT AACTCCTCAA	540
GATGGATGCA GAAAGGGCAT TGGACAGGT ATCTGGGGAA TTTGACCTCG TTTTCTTAGA	600
CCCTCCCTAT GCCAAGGAAC AAATCGTAGC AGATATTGAA AAAATGGCTG AGAGAGAGCT	660
TTTTTCTGAA GATGTTATGG TTGTGTGCGA GACGGATAAA GCCGTTGAAC TTCCAGAAGA	720
AATTGCCTGT CTGGGTATCT GGAAGGAAAA GATTATGGA ATTAGTAAGG TGACAGTCTA	780
TGTCAGATAA GATTGGCTTA TTCACAGGCT CATTTGATCC GATGACAAAT GGGCATCTGG	840
ATATCATTGA ACGGGCGAGC AGACTTTTTG ATAAGCTTTA TGTGGGTATT TTTTTAATC	900
CCCACAAACA AGGATTTCTC CCTCTGAAA ATCGTAAACG GGGGTTAGAA AAGGCTGTGA	960
AACATTTGGG AAATGTTAAA GTCGTGCTT CTCATGATAA ATGGTGGTC GATGTCGCAA	1020
AAAGACTGGG GGCTACTTGC CTAGTGCAG GTTTGAGAAA TGCCTCGGAT TTGCAATATG	1080
AAGCCAGTTT TGATTACTAC AATCATCAGC TGTCTTCTGA TATAGAGACT ATTTATTTAC	1140
ATAGTCGACC TGAACATCTC TATATCAGT CATCAGGCGT TAGAGAGCTT TTGAAGTTTG	1200
GTCAGGATAT TGCCTGCTAT GTTCCCG	1227

(2) INFORMATION FOR SEQ ID NO: 251:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 3652 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 251:

CCGGTCAAGT TAAAAACGCT ATTTCTTCCC ATTTTATTTA TTTTITAGGA GTGGTAACGT	60
ATCAAAATAG CCCAAGCGTT CTCACCCGTG TGAGTTTGAA TAATGGAACC CGTTTCCAAA	120
ACAGAAATTG GCTTTTCAAC ATAAGCTTGT AAGCTTTCTT TCATCTCTTT TGCCCAATCA	180
TCACTACCAG AATATGAAAT TCCAATCTCT GCTACAGCAC GTTCAGAAAG CGATGTTATC	240
AACTCATCTA ACCATTTTTT AAATGTTTGA GTTCCACGAC CTTTAACCAT TGGCTGCAAT	300
TCATGGTCTT TCATTTGCAT GACAGCACGG ATATTGAGAA GAGAGCTCAA CAAGCCAGTT	360

1274

ACACGGCTAA TTCGTCCACC TTTGACAAGA TTTTCCAAAG TTGAAACACC AATATAAAGC	420
TCTGTATGGT TTTTAACCTC TTCTACATGA GATAAAATTG CCTCCATATC TTTACCTTCT	480
TGAGCTAACT TCGCAGCCTC AACAACTTGG AATTTTCAGGG CTTGGTCAGT GAAGGAACTA	540
TCAACAACAG TCACATCTGC AGTAGATAGG CTAGCACCTT GGCGTGCTGC TTCTACCGTA	600
CCCGAAAGAG CATGGGACAT ATGAATAGCA AGAATCTGGC CACCATCTTT GCATAGGTCT	660
TCAAAAATCT CAGCAAAGAC ACCTACAGGT GGCTGACTTG TTTTCGGAAG ATTCTTACTT	720
TCTTGCATCA ACTGAAGAAA TTTACCTTCT TCTTTCAAAT CCGCATCAGA ATAAACAACA	780
TTATCAATCA TTACAGATAA TGGAACAATT GTAATATCTA ATTGCTTTAC TAGTTCAGGT	840
TCAATAGTAA CAGATGAATC GGTTACAATC TTAATTTTTG TCATAGTATC AATCTTTCTA	900
TTTTAGGATT CAGATTGGTT TCCTTACTTC TAATTATATC AAAAAAAGA TTA AAAATCC	960
TAATGGAGTC AATCAAATTT TCCGTAAAAT TTGATATAAT CAACTTATAA GAAAAGAGGT	1020
GTCCTATGAT TAAAAAATT TACCCCATTT TTACCATTTT ACTAGGTGCT GCTATTTATG	1080
CTTTGGACT GACTTATTTT GTAGTTCCCC ATCATCTCTT TGAAGGAGGG GCGACAGGCA	1140
TTACCCTCAT CACCTTTTAT CTTMTTAAAA TCCCTGTTTC CCTCATGAAC CTGCTGATTA	1200
ATATCCCTCT TTTTCATCCTA GCTTGAAGA TTTTGGAGC CAAATCCCTC TATTCTAGTT	1260
TACTAGGAAC CTTAGCTTTG TCCGGCTGGT TAGCTTTTTT TGAGCATATT CCCCTTCATA	1320
TTGATCTTCA AGGTGATTTA CTAATCACAG CCCTTATAGC GGAATCCTA TTGGGAATTG	1380
GCCTTGAAT TATTTTAAAT GCTGGAGGTA CAACTGGCGG AACTGATATT CTAGCTCGTA	1440
TTCTCAACAA ATACACTCAT ATATCCATAG GAAACTGCT CTTTATCTTA GATTTTGTGA	1500
TTCTCATGTT GATTCTCCTA ATCTTCAAGG ATTTGAGATT GGTTCCTAC ACGCTTTTGT	1560
TTGATTTTAT TGTTTCTCGT GTTATTGATT TGATTGGTGA AGGAGGATAT GCCGGCAAAG	1620
GCTTTATGAT TATCACAAAA CGTCCTGACC AACTTGCTAA GGCGATTAAT GATGACCTCG	1680
GAAGAGGTGT TACTTTTATT TCTGGTCAAG GCTACTATAG TAAAGAAAAT TTGAAAATCA	1740
TCTACTGTAT TGTCGGAAGA AATGAAATTG TGAAAACGAA GGAAATGATT CATCGAATCG	1800
ATCCTCAAGC CTTTATAACT ATTACAGAAG CCCATGAAAT CCTAGGAGAA GGCTTCACCT	1860
TTGAAAAAGA ATAAAAAGAG GTAATGTCGT GACCTCAAAA GTTAGACTAA ATCATCTATC	1920
TTTTGGGTTA CAGACAACCT CTTTTTTATT TTATTTACTC AAGCTCTTAA GACCAATTCC	1980
GAGTTACTTC TTCATCAGCC TTAACTGAT CCACTAATTG GTCAACTGAG TCAAATTTGG	2040
TCATATCTCG AATGCGATCA AGCCAATAAA CCATGACGGT TTCCCCATAA ATATCTTGAT	2100
TAAAATCAAA AATATTGACT TCAAAACGTG CTTCTTCTCC ATCAAAGGTC ACATTTTTC	2160

1275

CGACACTAGC CATAGCACGA TACTTCTGTC TTTGAATCTC AACATCAACA ACATAAACGC	2220
CATCTGCTGG CATATAAGTA CGGTCTAAAA GCACTAAATT CGCTGTCGGA TAACCAATTG	2280
TACGACCACG AGCATTACCA TGAACCACCA TACCTCTTGA TGGAAGCGGT GCCCCAAAA	2340
GTTTTCTGCG TTTCTTCACA TTTCCATCTA AAATAGCTTG ACGGATACGA GTTGAACATA	2400
TCTTTCCTTT CTCATCTTCT ACAGGTGGAA CAATGATAAC TTCTCCATCA AAGTAATTCT	2460
TTAAATCTTC TGCTGTTTTT TTGTCAGAAC CAAATGTATA ATCAAAACCT GCAACAATAA	2520
TTTTGGCATT CATAGCCTTG ATATAAGTTG CAAAGAATTC TTGTGCAGTG AGACTAGCGA	2580
ATTGACTACT AAAATCAAGG AGATATAATT CTTCTACACC TTCGCGCTTT AATTTCTTTT	2640
CACGTTTCAGC AGGGTTCAAA ATATGCAAAA ACAATCTGG ATGATAAGGC TCTAAAGCGA	2700
TCTTTGGAGA TTCATTAAAG GTCATAACGA CGATAGGCAA CAAATCCTTT CTCGCAGCCT	2760
TGTTGGCAAC ACGAAATAAT TCTTGATGCC CTTATGTAT GCCATCAAAA TAGCCGAGAA	2820
CAACGACTGA ATCAGATGGT GTGCCAATAT CTTTTGGTT TTTTATAGGA ATAGTAATAA	2880
TCATAAATA ATTATATCAT AGCGATAGCT ATTTCTGGAA CAGAAAATCT GAAATGTTGT	2940
TTTTTTCACA TGAAGTGAC CTGTTTCAA AAAGCACTTT ATTCTATCGT TGCTTAATA	3000
TGAACTTTC AATATTCTTC TCAAAAACCT GTAGGACATC TTCAAAATTT TGCAAGGAGT	3060
GATTAGACTT GTTCGGTAAC CATAAAGTGT CATACTATGC TTATGTATGA AAAAGCAATG	3120
CAACTAACTC CTGAGAACTT TAAATTACTA ATTGGTGCCG AAAAGGTAGA ATTTAGAATC	3180
GAGGTACACC TATGGCTGTA AAATTTACAA AATGAGACAA CTTGGGCAAG ATGTTTGAAG	3240
AATTTCTTAA ACTCCCTGAT TTGAAGCAAG TCACTTTCCC TAATGACAAA GAAAAAGCC	3300
AAAACAGCAA AGAAAACTA GATGACTGCT TTCCAACAAC TCCCATCTAG TGTGCTTCAG	3360
ACTGGGCTAT TTTTCTCTCC ATCTGTTAGC TTGGATTCTC AGACCGTTTC AGCTAAAGAA	3420
TATCTTTTCC CTTATCAGAA GGAACGGCTC AAGCCATTCA GACAAGTGAA GGGACGACAA	3480
GCCAATATTT GAAACCAGAT AGCAGTTCTT ATAGTCAATT GAAATAAAAT CTGAAGAAAT	3540
CGAGTAGGAA ACTCATATCA ATGTTTAACA GTGTTCTATT CCAGATTCAT ACTCAATGAW	3600
AATTAAAGTG CAAACTAGGA AGTTAGCCGC AGGTGATACT TTGGGTACGG CA	3652

(2) INFORMATION FOR SEQ ID NO: 252:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 743 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

1276

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 252:

GTACCGTGGT GCCAAAGTAC AGCAAGGTTG GCTTTTTGAC AAACAATACC AATCTTGGTT	60
TTACATCAAA GAAAATGGAA ACTATGCTGA TAAAGAATGG ATTTTCGAGA ATGGTCACTA	120
TTATTATCTA AAATCCGGTG GCTACATGGC AGCCAATGAA TGGATTGGG ATAAGGAATC	180
TTGGTTTTAT CTCAAATTTG ATGGGAAAAT GGCTGAAAAA GAATGGGTCT ACGATTCTCA	240
TAGTCAAGCT TGGTACTACT TCAAATCCGG TGGTTACATG ACAGCCAATG AATGGATTTG	300
GGATAAGGAA TCTTGGTTTT ATCTCAAATC TGATGGGAAA ATAGCTGAAA AAGAATGGGT	360
CTACGATTCT CATAGTCAAG CTTGGTACTA CTTCAAATCC GGTGGTTACA TGACAGCCAA	420
TGAATGGATT TGGGATAAGG AATCTTGGTT TTACCTCAAA TCTGATGGGA AAATAGCTGA	480
AAAAGAATGG GTCTACGATT CTCATAGTCA AGCTTGGTAC TACTTCAAAT CTGGTGGCTA	540
CATGGCGAAA AATGAGACAG TAGATGGTTA TCAGCTTGA AGCGATGGTA AATGGCTTGG	600
AGGAAAACT ACAATGAAA ATGCTGCTTA CTATCAAGTA GTGCCTGTTA CAGCCAATGT	660
TTATGATTCA GATGGTGAAA AGCTTTCCTA TATATCGCAA AGTAGTGTCG TATGGCTAGA	720
TAAGGATAGA AAAAGTGATG ACA	743

## (2) INFORMATION FOR SEQ ID NO: 253:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 4010 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 253:

TTTGGTTGA TGATACGAGG GATTGGTGA TTCTTCTTGA CGATAGAAGT TTCAGCGACC	60
ATCATTTTTG AACAGTGATA GCACTTGAAT CGACGCTTTC TAAGGAGAAT TCTAGTAGGC	120
ATACCAGTCG TTTCAAGATA AGGAATTTTA GAAGGTTTTT GAAAGTCATA TTTCTTCAAT	180
TGGTTTCCGC ACTCAGGGCA AGATGGGGCG TCGTAGTCCA GTTTGGCGAT GATTTCCTTG	240
TGTGTATCCT TATTGATGAT GTCTAAAATC TGGATATTAG GGTCTTTAAT GTCTAGTAAT	300
TTTGTGATAA AATGTAATTG TTCCATATGA TTCTTTCTAA TGAGTTGTTT TGTGCGTTTT	360
CATTATAGGT CATATGGGAC TTTTTTCTA CAATAAAATA GGCTCCATAA TATCTATAGT	420
GGATTTACCC ACTACAAATA TTATAGAACC GAATTAATTT AATTAGAGAG CCAACTTTCT	480
AATATAGTAA TCGCGTCATA ACAAGGTATC TATCATTCAT GGAGTTCCTC CTGTATACTA	540

1277

TTAGTAAAGT AAAACTATTG GAGGATATTT TAATGCCACA ACCTATTGTT CCTGTAGAGA	600
TTCCACAATC TCGTCGTTTT GATTCTAAAA AGAGAAATGA TATTCTGCTT AAAATTCGTA	660
TTGGCAAGCT TGAAGTAAGT TTTTTTCAAT CTCTCAATCT CGAAATGGTA GAACAGCTTT	720
TGGATAAAGT GTTGCTCTAT GACAATTCAT CTATCTAGCC TAGGGCAGGT CTATCTCGTA	780
TGTGGGAAAA CGGATATGAG GCAAGGCATT GATTCAATGG CTTATCTGGT TAAAACCCAC	840
TTTGAATTAG ATCCTTTCTC CGGTCAAGTT TTTCTCTTTT GTGGTGGACG TAAAGACCGC	900
TTTAAAGCCC TTTACTGGGA TGGTCAAGGA TTTTGGCTAC TATATAAAGC CTTTGAGAAC	960
GGAAACTGA CTTGGCCCAG TACAGAAAAG GATGTCAAAG CTCTCACACC TGAACAAGTA	1020
GATTGGCTTA TGAAGGGCTT TTCTATCACT CCAAAAATAA ATTTATCAGA AAGTCGTGAT	1080
TTCTATTGAA ATGAGGACTT TCTTTTAGT TATAATAAAG TTAGGAAATA AGGAGAGGAA	1140
GCCCATGGAA GAAGATTGAA AATCATTCAA CAACAGAGTG CTACAATTGA TAGTCTCACC	1200
AATGAACCTG CCCTTCTTCG TGAACAAGTG GCTTATCTAA CGCAAAAGCT CTATGGAAAA	1260
TCCTCTGAGA AAAGTGTTTG CCCATCTGGA CAACTCAGTC TTTTGAAGA GGAACAAAAT	1320
ATGGAAGAAG ACTCTGACTT ACCCAGTTGA AAGAGAAGAA ATCACCTATA AACGTAAGAA	1380
AGCTAAAGGG AAACGTCAAG CTCTTCTTGC CCAATTTGAT TCAGAAGAAG TTCATCATCA	1440
AGTAGAAGAG AGCATTTGCC CTGATTGTCA GGGAGATCTA AAAGAGATTG GAGCAACCCT	1500
TCAACGACAA GAATTAGTCT TTATTCTCTG GCAATTAAAA CGAATAGATC ATATCCAACA	1560
CGCTTATAAG TGCCAAGCAT GCAGTGATAA AAATCCGAGT GATAAAATCG TGAAAGCTCC	1620
TATTCTAAA GCCCCTTTGG CGCATAGCCT TGGCTCAGCT TCTATTATCG CTCACACCAT	1680
CCATCAGAAG TTTAATCTGA AGGTACCCAA TTATCGCCAA GAAGAAGATT GGGCTAAGAT	1740
GGGTTTACCA ATCACACGTA AGGAAATTGC TAATTGGCAT ATCAAGGCCA GTCAATACTA	1800
TTTGGAGCCC CTTTATAATC TTTTACGAGA AAAGTTGTTA GAACAAGCTC TTCTTCATGC	1860
GGATGAAACC TCTTATCGGG TTCTAGAGAG TGATAGTCAG TTGCCTTACT ATTGGACTTT	1920
TTTGTCTGGG AAAGCTGAGA ATCAAGCAAT CACGCTGTAC CACCATGATC AGCGTCGGAG	1980
TGGTTTAGTA GTACAAGAAT TCCTAGGAGA TTATTCTGGC TATGTTTATT GTGACATGTT	2040
GCGGCAGTAA CTTAGGACTT TAGTCCTCTA GTTCTGCCTA TGCGATAGCA GTCCAAGGTT	2100
TAGGAGTAAG GCGACGCTAA GCTTGGTAAA CTGCGAACAG CTAGAAGCTT ATCGTCAACT	2160
GGAAGAAGCT GCACTTGTTG GATGTTGGGC GCATGTGAGA AGGAAGTTTT TTGAAGTGCC	2220
CCCCAAGCAA GCAGATAAAT CATCCTTAGG AGCTAAAGGT TTAGCTTATT GTGATCAGTT	2280

1278

ATTTTCCTTG GAAAGAGACT GGGAGGCTTT GCCAGCTGAT GAACGACTAC AGAAACGTCA	2340
AGAACATCTC CAGCCCCTAA TGAAGACTT CTTTGCTTGG TGCCGCCGTC AGTCAGTTTT	2400
AGCAGGTTCA AAAGTAGGAA GGGCAATTGA ATACAGCCTC AAGTATGAAG AAACCTTTAA	2460
GACTATTTTG AAAGACGGAC ATCTGGTCCT TTCCAATAAT CTAGCTGAAC GCGCCATTAA	2520
ATCATTGGTT ATGGGACGGA GTAAAAGAGT CCAGTGGACT CTTTTAGCCT GAGCTCAGTT	2580
TAAAAAAGCG AGGGTGGTTA TTTTCTCAA GTTTTGAAGG AGCTAAAGCA AGAGCTATTG	2640
TTATGAGCTT GTTGGAACA GCTAAACGTC ATCAATTATA GTGCGTTGAA TCTATAACAG	2700
TACGCATCGA CTGCTAAAC ATTTCTATAA ATCAATTTTC CTTTCCTAAT CGATTTGTTT	2760
ATATCTTATT TCAATCCATT ATAAATAGCG AGAAATATCT ATCCTATCTT CTAGAATGTC	2820
TTCCAAACGA GGAAGCTCTC GTAAACAAAG AGGTTTTAGA GGCCTATTTA CCGTGGACTA	2880
AAGTTGTACA AGAAAAGTGC AAATAAGAAA TCTCCAGATT AGGAACTATC CGTGAGTTCT	2940
CTAGTCTGGA GATTTTTCAA TAGACTTCGT TATTTGACGG TTACAATTTA TTATATGAAA	3000
ATCCCATATT ATTCTCCAAT TCTATATTTT ACCTTTCTAA ATGTATAGAT TAACTACCTA	3060
ATTATAGCAT ATAACGCAGA TTCCTTTCAA TCGTATGATT TACTGCATTA AATTAAGTAA	3120
AAAAATAAAG GCAGTCCGAA GACTGCCGAT ATTTATCTCT CATCTCTTTA ATTATGGTAA	3180
GTAATAAAT AATTTCCCTA AAGATATGGA AATTATTAAT ACTATAAATA CATATTATAA	3240
AGTTTATAAA TACTGTAAAA ATCCTGAAGT TAATTTTCTA ATAAATATCA ATATGTGTAA	3300
GTATCTTTTA AATTTTTAGA CAATTTACTA GTTCTATAGA CATGTTTAAC AGACTCTATT	3360
TTACAATTCA AAAATTTTCA CTGCCACTTC ATTTAAAAAT TCTATATCAT GGGAAACAAT	3420
AAAAATTATT TTATCCATGG TTTTATACTT ATTAATCAGT TCAGATATTT TTATCATATT	3480
GGAATAATCC ATACCACTTG AAGGTTTCGTC AAAAAAGACA AATGGAGAAT TCTTGACAT	3540
AACAGATGCT ATTGCAAGCC TTTGCTTTTG CCTCCTGAT AAACATCATG GATGCCTTTC	3600
AATAAATTCG TCCAGGCATA AATCTTTTAA CCCAAATCAT TCATACCTCT CTCAACTAGA	3660
TGTAACTTAC AAAACCCCTG ACCTCATGAG CCACTTTCTT CCTCCTCATG AGGTCAGTTT	3720
TACTTTCTGC TGTCCAGTA TCGTTTTTCC TCGCTAGATT TCCTCAAAG GGCAGACTCC	3780
TCCCTTGGTT CGTCACACGA TTTTTCATC TCGACTGTTT TTTAATGCAT CATTAAACGAC	3840
GCTTTTCTTC TAGGTGGTTC ATAAGGAACA GGAAGATTCA GGTTGACTTT TCTAATCCTA	3900
GAATAAAGTG CTGAAAACAA TTCGGAATAG GCATAGAGAC TAGACAATTT GAGGAGCTGC	3960
TTGCGTCTG TTCGAACACA TTTTCCACC ACGTGAAGAA AAAGATGGCG	4010

(2) INFORMATION FOR SEQ ID NO: 254:

1279

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 2789 base pairs -  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 254:

ATGCATCCGT TTGTCAAGCC TAAATTGTAA TTTTTCCTCA TTTAAACAG AAAACCCAG	60
GAAAATGACA TAAAAATATC ATTCCTAGGC CTATTTATGC TATTTCTCTC TGAAAAATAT	120
GAGTATTCAG TCGGTCAAAT GAAGCTGAAC GAACTCATTT TCCCTCGCCT AATTCATGA	180
TTCGATGACA TTGTTGGGCT ACATAAGCAT CGTGGGTAC GATAATGACT GTTTTCCCCT	240
CTCGATTCAT CTCTAAGAGA AACTTCAAGA CCAAATCTCT ATTTTCAGGA TCCAGAGAAC	300
CTGTCGGTTC ATCGGCTAAA ATCAGCTGGC TGGGTTTAA GATGGCTCTA GCAACTGCAA	360
TTGCTGTGTT TCGCCCCA GACAACTCGG AGACCTTTG ATGCAAAGTA GCTGATAAAC	420
CTACTCTCTC TAAATCTCT TCCACCTTT TGAGCTTGTC TTTCTTAGGC AATTCACAT	480
ATTTCAGCGC CACATGAGAT TGTACTCGAC CGTTTCATCA TCAATCAGGG CAAAATTTTG	540
AAACAGATAA GAGATATGTT CACGGATTAT TGTGCGAC TTAGCAGAAT TAACCGCTAG	600
ATTTGTCTGA CCAAAATCT CATACCGTCC GGTATAATCA CCATCTATCA AACCCAATAA	660
ATTTAACAAG GTCGACTTCC CACTACCACT CTTACCAACA ATAGCTACCA AATCCCCCTG	720
ATCAATCCTG AGAGATAAGT TATCCAAAT CACTTTTCCC CCAATGGTTT TGGTAATATT	780
TTTCAACTCA ATCATAAGAT GCCCCCTTC AATAACTCTA CTAGACTTCT TTTCTCCATC	840
CTAGAAGCTA AGCCTAGCAC AAATAGTATA TCCAGACATG TAAACCTGC AAACAGTAGA	900
AGTGGTAAGA ACGCATGGGC AAAGAAAATC AAGACTAGAA GAGGGAAC ATAGCCCAGC	960
AAGAGCAGAA CGAGGAGAGG ACGGTAGCGA TCGACCAGTT TCCACCCCAT AAATTTCTTG	1020
GTAATGATAT CCCTGCGCTT CAATAAGAAA GTTGTACTA GTAAGAAGTA GGAAATCATC	1080
ATGCTAAGGA GACCAACAA AGCAAAGAGT AGGTTAAAT TCCGAACAGC ATCTCGATAA	1140
GAATCCACTT TCTCTTGTG AATGGCTTGA ATAGATGAAA ATTTTAAATA ATTTCCATCT	1200
GACAATTTCT CAACTAACTC TGTAACTCT TTTTGATGTT GAACCGTATT TTCAATTTTA	1260
ATCGGATTAT TTAAGCCAGT TGTGACAGG GAGGCTTTCT CATCCCATCAT ATATCAGAA	1320
TCATTGACCA AGCTAATAAT TGGATTGGAG AGATTTTCCT TTCGCTTATC ACTATATGGG	1380
AAAAATGACC AATCTCCTTC ATAATAGGCA ATCTCGACAT CCATCTCCTC TATCGTTCGT	1440

1280

TTTGTGCTGCT CTTCACTATT CATCGAATGA AAGGCAATTA ACTTCCCCAA GAGCTGATTT	1500
TTATCTTCTT CACCTTTCGT ACTTGCTGGC ATCAAAATAA CTTTTTTAAT ACCGGTATTT	1560
GGTAGCTTGA ATCCCTTGCT CTTTAGAAAA TTGCGATTGG CATAGTAAAC ATCCACCGTA	1620
TCTGTAACT GATATTGCTG AATCTGTTCT GATTGGACAA AATTTTTTAC AGGAAGACTG	1680
CTACTCTGCA CATAGCCCCG CTGCGTTTTT TCTACCAAAT CCTGATAAAA TCGATAGAAA	1740
TAATCTGTAG ATTTCCCTGA CCCTGCTAGC TCTTCTTGCC ACAGATTATC ATTGAGTTTG	1800
AAGGTTTCTA AGGTCAGGTA ATTACCTTGA CTTACCCACT GTTGCTGATA AGCAAGTTCT	1860
TTGTTTTCTT GTTCTAACT TCTGCCACC CCAATCAGTA AGGCCGTCAG TAAATAGTT	1920
GTCCCTATTT TCATCACATA ATTGAAGATA AGACCAAATT TGAAAGATGA AAAACCTTTC	1980
AGCAGAGAGC TGATTGTCAT TTTTGGATT AAGAGGTAAG TCAACCAACT GATAAAGAGA	2040
TAAAGCTGCA ACAGCAAAAA ATGAGACAAC CACAGCATAG GAAACAAATC TTTTGGCTTA	2100
TAATCAAGCA AGAAAAACAC GCCTAGATTG ATCACAAGAG CCCACCTAG GAGGAGGTAA	2160
AGGTTGCCTT TTACAACATC AGCTAAAACA GCCCTATCTT GAAAACCAAG TAATTTTGT	2220
ACCCCACTC TTTTCATCTC CATCATCGGT TGATACACTG TCACTAACAC AAGAAGCAAA	2280
ATAGCCAAGA CAAAAACAAT GGCAGATAAA AGCAAATCTC GATTTATGAC TTCCACTGCA	2340
CTTTTGTAGG TCGGCTCTAG CAAGGTAGCC TGGTCTATCT TGAAAAAATC GTCCTATTC	2400
TGTACAATCC TATCCTTGTC CATCTCTTGT GTAGAAGTTA TCGTATAGCG ACCATTTAAA	2460
CTACGAGATG TATCCTTGAT ATAGGTTTGA AAAGTCATAA GCTGAATAGG TTTGGCTTTT	2520
AGAAAGGTCG GAATCGTACC AAGTTTATTG GAAATTTCTT TATTACTATA GACTCCTTCA	2580
CCATCTGTGG TAAAATCAAG AGAAGAAATC CCAAATCTT GGTAGGGGAA GGTATCTTTA	2640
TCAAAAACAC CAGACTTGAC CACCTCATCA CCACTGTCTG TTTTGATGAT GGAGACTTTA	2700
TACTCCTTTG ATACATCCTC AAAAAATCGA AGAACAGACG CTGCAGGTTT GTTAATATCT	2760
TTCAAATACA AATCCAAAGA ATCTACAGG	2789

(2) INFORMATION FOR SEQ ID NO: 255:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2495 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 255:

CTGCGAATTT TATTAAAGAT AATGTGTTAA TTACAGCGGC TCACAACTAC TACAGACATG 60



1281

ACTATGGGAA AGAAGCGGAT GATATTTATG TTCTTCCGGC TGTTAGTCCA AGTCAAGAAC	120
CATTTGGAAA GATCAAAGTA AAGGAAGTTC GTTATTTGAA GGAATTTAGA AATTTAAATT	180
CTAAGGATGC AAGGGAATAT GACTTGGCTT TATTAATTCT AGAAGAGCCC ATTGGTGCAA	240
AATTAGGGAC TTTGGGTCTT CCTACTAGTC AAAAAAATTT GACAGGAATA ACTGTGACTA	300
TCACAGGCTA TCCATCATAT AATTTTAAAA TTCATCAAAT GTATACAGAT AAGAAACAAG	360
TTTTAAGTGA TGATGGCATG TTCTTGGATT ACCAAGTTGA TACTTTAGAG GGGTCTAGTG	420
GATCTACAGT TTATGATGCT AGTCACCGTG TAGTAGGAGT GCATACTTTA GGAGATGGAG	480
CTAATCAAAT TAACAGTGCA GTTAAATTAA ATGAACGAAA TTTGCCATTT ATTTAWTCGG	540
TTCTTAAAGG TTAATCTCTT GAAGGATGGA AGAAAAATAA TGGTAGTTGG TACCATTATA	600
GACAACATGA TAAACAAACG GGTGGGCAGG AGATAAATGA TACCTGGTAT TATTTAGACA	660
GTTCCGGTAA GATGCTTACA GATTGGCAAA AAGTCCATGG AAAATGGTAT TATCTCAATT	720
CAAATGGAGC AATGGTTACA GGTAGCCAAA CTATCGATGG TAAAGTTTAT AACTTCGCTT	780
CATCTGGTGA GTGGATTAA TGTTGGAGGA TATATAAAAT GAAGCTTTTG AAAAAATGA	840
TGCAAATCGC ACTAGCCACA TTTTCTTCG GTTTGTTAGC GACAAATACA GTATTGCGAG	900
ATGATTCTGA AGGATGGCAG TTTGTCCAAG AAAATGGTAG AACCTACTAC AAAAAAGGGG	960
ATCTAAAAGA AACCTACTGG AGAGTGATAG ATGGGAAGTA CTATTATTTT GATCCTTTAT	1020
CCGGAGAGAT GGTGTGCGC TGGCAATATA TACCTGCTCC ACACAAGGGG GTTACGATG	1080
GTCCTTCTCC AAGAATAGAG ATTGCTCTTA GACCAGATTG GTTTTATTTT GGTCAAGATG	1140
GTGTATTACA AGAATTTGTT GGCAAGCAAG TTTTAGAAGC AAAAACTGCT ACCAATACCA	1200
ACAAACATCA TGGGGAAGAA TATGATAGCC AAGCAGAGAA ACGAGTCTAT TATTTTGAAG	1260
ATCAGCGTAG TTATCATACT TTA AAAA CTG GTTGATTTA TGAAGAGGGT CATTTGGTATT	1320
ATTTACAGAA GGATGGTGGC TTTGATTCGC GCATCAACAG ATTGACGGTT GGAGAGCTAG	1380
CACGTGGTTG GGTTAAGGAT TACCCTCTTA CGTATGATGA AGAGAACTA AAAGCAGCTC	1440
CATGGTACTA TCTAAATCCA GCAACTGGCA TTATGCAAAC AGGTTGGCAA TATCTAGGTA	1500
ATAGATGGTA CTACCTCCAT TCGTCAGGAG CTATGGCAAC TGGCTGGTAT AAGGAAGGCT	1560
CAACTTGGTA CTATCTAGAT GCTGAAAATG GTGATATGAG AACTGGCTGG CAAAACCTTG	1620
GGAACAAATG GTACTATCTC CGTTCATCAG GAGCTATGGC AACTGGTTGG TATCAGGAAA	1680
GTTCGACTTG GTACTATCTA AATGCAAGTA ATGAGATAT GAAAACAGGC TGGTTCCAAG	1740
TCAATGGTAA CTGGTACTAT GCCTATGATT CAGGTGCTTT AGCTGTTAAT ACCACAGTAG	1800

1282

GTGGTTACTA CTAAACTAT AATGGTGAAT GGGTTAAGTA ATGAAGGCTA ATTGTAAACT	1860
GTGATGGATA CTAACTTTG TATAATAGGT GGATAAAAGT CTTCAACAATC AAAAAACGCA	1920
TAGTATCAAG GTTTTCTGT ACTGCCCTCA AACAGTTAGA CAATTAATTT ATCCGAAGGA	1980
TTTAGTTCTG TATTGCACAG GGCTAAGTCC TTTAGTTTT ACCTTAATTC GTTTATTGTT	2040
GTAGTAATCA ATATAGTCTA TAATGGCTTG TTCCAATTGC TTAGCGACT GAAACGACTT	2100
CTCATAACCG TAAACATTT CCGATTTTCAAG AATCCCAAAG AAGGACTCCA TCATACTATT	2160
GTCTGGGCTG TTTCCCTTAC GTGACATGGA TGCTTGAATT CCCTTACTCT CTAGGAACCG	2220
ATGATAAGAA TCGTGTGGT ATTGCCAGCC TTGGTCACTA TGGAGAATCG TATTCTCGTA	2280
GTGCTTCTCT GTGAATGCCT GTTCCAACAT TGTTTGTACT TGTCTAAGT TGGGTGAAGT	2340
TGAAAGATTA TAGGCGATAA TTTCGCTATT AAAGCCATCT AAAACTGGTG ATAAGTAAAG	2400
CTTTTGAGTA CTTGCTGGAA TGGCAAATTC TGTCACATCT GTGTAGCACT TTTCCATTGT	2460
TTTAGAGCCT TCAAATTGGC CTGAATGAG ATTCG	2495

## (2) INFORMATION FOR SEQ ID NO: 256:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 870 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 256:

TACCACCGTA TTCATCCAGC AAGATTGCCA TTTGTCTTTG GGTATTTGCG AGTTCTTTTA	60
GCAAGTCATC CACAAAAATA GTTTCAGGTA CAAAAAGTGG ATCTTGTAAG ATTCTCTTCC	120
AAACAATATT GTCAAAACCG TCCACAAAGC CTGCCTTAAG GAGACTCTTG GTGTGAATGA	180
TTCCAATTAC ATTGTCCTTA TCCCCATCAT AAACCGGGAT ACGAGAATAA TTTTGTTTTA	240
AAATACTTTG GATAATGGCT TGAATATCAT CCTGAATATC CACCATAAAG GCATCCGTTT	300
GAGGAACCAT AACCTCTCGT GCCATCAGTT CATCGAGCGA AAAGACACCT TGTAGCATCT	360
CAATCTCATC AGCATCCAAT GTTCTTTCAC TATTTGTCAG CATATAGGCA ATTTTCATCAC	420
GGGTCATCTT TTCATCCGCA TCATCGAATG ACATAGGAGT CAAATGGCTC AAGAAATTGG	480
TCCAAGCAGC TAAAAGCCAA ACAAAGGAC TGAATAGTTT TCCGATCCCA ATGATAATCG	540
GCGCTGTACG AATTGCCAAG GCATCCTTTA GATTAAGAGC GATTCTCTTA GGATATAATT	600
CCCCAAAAAC GATGGAATA TAGGTCAAAA ATGCCAAGGA TAGAAAAGTT GCCACGGCTT	660
GTGCTGTTTC GCCATTCCCA AGCCAAGAGG CAATCACACG TCCTAGAGTA TCAGTTAAAC	720

1283

TCGCCCCCTGA TAAGATTGTA ATCAGGGTGA TTCCTACCTG GATGGTTGAT AAAAAGTGGT	780
TAGGATTTTC TAGTACCTTC AGCAGGCGGA TGTAGCGTCT GTCTCCTTCT TCCGCTTTT	840
GTTCAACTCG GGCACGATTA AGAGAAACGG	870

(2) INFORMATION FOR SEQ ID NO: 257:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1245 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 257:

CGTCCCAGA AGCCCGCATT CTCATCGCCA ATGTCGTGAT TGATTGGCC CTTTCTCCAA	60
AATCCAATC AGCCTATGTA GCTATGGATA AGGCACTTGC TGACCTCAA ACATCAGGGC	120
ACTTGCCTAT TCCGCGACAC CTGCGTGATG GGCACCTACAG TGAAGCAAG GAACTGGGA	180
ATGCCAAGA CTATCTCTAT CCACACAAT ATCCTGGAAA TTGGGTCAAG CAAGACTATC	240
TGCCAGAAA AATTCGTAAT CATCACTATT TCCAAGCAGA AGATACTGGT AAATATGAAC	300
GGGCTTTGGC TCAAAGAAAG GAAGCTATCG ACCGTTTGGC AAAAATCTGA AATCCTTTTC	360
AAAAAATTGC ACTTTCCTCT TGATTTTTTT TGAAGAGTG GTATCATATA AATATAGAAA	420
CGCTGTGGTG TACGACTTCA CACTTAAGTG TTGACCGACT ATTTTTTGTA TTATTAGGGA	480
AACAAAAGTC TTCTAACAGC ATGTAGGCCG TCTCACACGG AACAGCTTC AGTTAGAGCG	540
AGTTGCCCAC CTGCTTAATT GCGCGGTTT AATACAAACC GTGAAGTTTC GGCACCAATA	600
CAGCTTTTTT CTTTGCCTCC TTAGCTCAGC TGGCAGAGCA GCGGACTCTT AATCCCTGGG	660
TCACAGGTTT GATCCCTGTA GGGGGCATAT AAATACAACA GGAAAAGCCT TATAATATAG	720
GGCTTTTTTT GCTTTCCTTT TAAAAATTGT CGTGCAATTT GCCGTGTTTT TACAACAAAC	780
TTTTACAGC CATAAACTCC TCACTAATTT TTTCCTCCAA GGTATGCCCA TAAACGTCAA	840
TCAACATGGA GATATCTTTA TGTCTAAAA TTGGCTCTT TGTCAACTGT AGTGGGTGTA	900
AGTCAGCTAA GCTCGAGAAA GGACAAATTT TGTCCTTTCT TTTTGATAT TCAGAGCGAT	960
AAAAATCCGT TTTTGAAGT TTTCAAAGT CCGAAAACCA AAGGCATTGC GCTTGATAAG	1020
TTTGATGAGA TTATTGGTCG CTTCCAATTT GGCCTTAGAA TAGTGTAGTT GAAGGGCGTT	1080
GACGATTTTC TCTTGTCTT TTAGAAAGT TTTAAAGACA GTCTGAAAA GAGGAGGAAC	1140
CTGCTTTAGA TTGTCTCAA TGAGTCCGAA AAATTTCTCC GGTGCCTTAT TCTGAAAGTG	1200

1284  
AAACAGCAAG AGTTGATAGA GCTGATAGTG ATGTTTCAAG TCTTG

1245

## (2) INFORMATION FOR SEQ ID NO: 258:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 1684 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 258:

ATGCCTATGT AACTCCACAT ATGACCCATA GCCACTGGAT TAAAAAAGAT AGTTTGTCTG	60
AAGCTGAGAG AGCGGCACCC AGGCTTATGC TAAAGAGAAA GGTTCGACCC CTCCTTCGAC	120
AGACCATCAG GATTGAGGAA ATACTGAGGC AAAAGGAGCA GAAGCTATCT ACAACCGCGT	180
GAAAGCAGCT AAGAAGGTGC CACTTGATCG TATGCCTTAC AATCTTCAAT ATACTGTAGA	240
AGTCAAAAAC GGTAGTTTAA TCATACCTCA TTATGACCAT TACCATAACA TCAAATTGA	300
GTGGTTTGAC GAAGGCCTTT ATGAGGCACC TAAGGGGTAT ACTCTTGAGG ATCTTTTGGC	360
GACTGTCAAG TACTATGTCG AACATCCAAA CGAACGTCCG CATTCAGATA ATGGTTTGGG	420
TAACGCTAGC GACCATGTTT AAAGAAACAA AAATGGTCAA GCTGATACCA ATCAAACGGA	480
AAAACCAAGC GAGGAGAAAC CTCAGACAGA AAAACCTGAG GAAGAAACCC CTCGAGAAGA	540
GAAACCGCAA AGCGAGAAAC CAGAGTCTCC AAAACCAACA GAGGAACCAG AAGAATCACC	600
AGAGGAATCA GAAGAACCTC AGGTCGAGAC TGAAAAGGTT GAAGAAAAAC TGAGAGAGGC	660
TGAAGATTTA CTTGGAAAAA TCCAGGATCC AATTATCAAG TCCAATGCCA AAGAGACTCT	720
CACAGGATTA AAAATAATT TACTATTGG CACCCAGGAC AACAATACTA TTATGGCAGA	780
AGCTGAAAAA CTATTGGCTT TATTAAAGGA GAGTAAGTAA AGGTAGCAGC ATTTTCTAAC	840
TCCTAAAAAC AGGATAGGAG AACCGGAAAA CGAAAAATGA GAGCAGAATG TGAGTCTAG	900
TTCTCATTTT TTTTCATGAA ATGTGCAAAA TATAGTAGAT TGAACTAGA ATAGTATACC	960
TCTACTTCTA AAACATTGTT AGAAATCGAT TTGACTGTCC TGTCTTATT TCATTTTACT	1020
ATATCTTAAC AGATAGTGTA AATAAGATA AACTATTAC TGGCTAATTA ATCAGTTAAA	1080
CACTAGTTAA GGAGTAATGA TGAAAAAAG AACAATACTA TTATTGATGG CCAGTCTGTT	1140
AGCTCTTGTC TTAGGAGCAT GTGGTTTCTT GGACATATTG ATCCTGGATC ATTCTCATCA	1200
GGATTACTCT TTAAGCTAT TTTAGAACT GGGGTGGTTT GATGGAAAGT ATTGGTCTTG	1260
TTATCGTTTC ACATTCCAAA CACATTGCAG AAGGTGTTGT TGAAGTGAAT AGTAAAGTAG	1320
CTAAAGATGT TCCGATTACT TATGTAAGAG GAACCGAGGG CGGAGGAATT GGAACGAGTT	1380

1285

TTGAACAAGT AGATAGGGTT GTTTCGAAA ATCCAGCAGA TACTTTACTT GCCTTTTTTG	1440
ACCTAGGTTC TGCTAAAATG AACTTAAAAA TGGTGAAGTGA TTTCAGTGAT AAAAGTATCA	1500
TCATCAACAG GGTTCCAATT GTAGAAGGTG CCTATAATGC AGCTGCTCTT CTTCAGGCTG	1560
GTGCAGAACT GTCAGTTATT CAAACACAGT TaGCGGAgCt TGAAATCAAT AAATAAGGAA	1620
TTTTACTATA ACTCTTTTTA TAGATAAGCT ATTGaTTATC TCAACTATAA TAATGTTAAG	1680
TrAA	1684

(2) INFORMATION FOR SEQ ID NO: 259:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 970 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 259:

AGGAGTGGAG AnATATGAAG ACACAAATTT TCACATTATT GAAAAATCGTT GCTGAGATTA	60
TTATTATTTT GCCATTCTTA ACTAATCTAT AAGTTCTTTA TATTGCTGAA AACGCAATTC	120
AAAAAGGGCT ATTAATTGTG GATTTTCTAA TACCTGCAGA GATTGGATAA AGCGTTCAAT	180
CTCTTTTGA TTGCTTCCCT TTGTTGAAG AAAGACACTC ATCTTCTTTA AAAATGCCA	240
CGATACTTTT TCAAAAACAT CATACGGTCG TAACATCCTC TCCAACCTCG CTTCGAAGAT	300
TGGGATGTAG GAGAAAAGTT TTCGCTCCAT GAGTTCTGAT AAGATATTTA AGAGTCCTTG	360
CTTCATATAC AATCGATTGT GTACTAACTC TTAAATTTCT TTGGATTTT CGAGTAAGGA	420
GGTTGATAAA AAAATCAGAT CTTGATTGCT CAAGAAGGGC ATGGTATTGC AAAAGAGATA	480
GAGTTCAAAC CAGGTCCAAG ACTCGATAGC ATAGAGATAG GTGGTCAAAA ACTCGCTATC	540
CTCCTCTGCT AGTGGGTAGC TTTTATTTAG TGAATGGATG GCATCTTTAA TCACGATGGC	600
ATTCAAACGA CGATAGGTCT GCGCCATCTG TTCTTGATCG ACTTCCTCCA ATAGCTGCTC	660
TAAAGCAGCT ATATCCTGAT GGGCAAAGCG ATTCACAACC TTTGACCGA TTCGATATG	720
TGGAGATTCT TGATAGTTGT TGAGCTTGTG CCCAACTCA TCAAAGGTCA CATTTATACC	780
TTGGATAGCT AGAATCAACT TATCCGAGA CAGCATAGAC TGCCCTAGTT CAACTTGGA	840
CAACTGAGAA GCTGTTAGAC CCTCACAAGC CACATCTGAC TGCTTGAGCT TTCTGCCAA	900
ACGTAATTCC TTGTAAAATT CCCCAGTTC CATTTCTCA ATCATCTGAC CACCTCTAG	960
CTTTTGCAGG	970

1286

## (2) INFORMATION FOR SEQ ID NO: 260:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 2996 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 260:

GTTGACCACG GGTAAACTA CCCTAACTGC AGCTATCACA ACTGTTTGG CACGTCGCTT	60
GCCTTCATCA GTTAACCAAC CTAAGACTA TCGTCTATC GATGCTGCTC CAGAAGAACG	120
CGAACGCGGT ATCACTATCA ACACTGCGCA CGTTGAGTAC GAAACTGAAA AACGTCACCTA	180
CGCTCACATC GACGCTCCAG GACACGCGGA CTACGTTAAA AACATGATCA CTGGTGCTGC	240
TCAAATGGAC GGAGCTATCC TTGTAGTAGC TTCAACTGAC GGACCAATGC CACAACTCG	300
TGAGCACATC CTTCTTTCAC GTCAGGTTGG TGTTAAACAC CTTATCGTCT TCATGAACAA	360
AGTTGACTTG GTTGACGACG AAGAATTGCT TGAATTGGTT GAAATGAAA TCCGTGACCT	420
ATTGTCAGAA TACGACTTCC CAGGTGACGA TCTTCCAGTT ATCCAAGGTT CAGCACTTAA	480
AGCTCTTGAA GGTGACTCTA AATACGAAGA CATCGTTATG GAATTGATGA ACACAGTTGA	540
TGAGTATATC CCAGAACCAG AACGTGACAC TGACAAACCA TTGCTTCTTC CAGTCGAGGA	600
CGTATTCTCA ATCACTGGAC GTGGTACAGT TGCTTCAGGA CGTATCGACC GTGGTATCGT	660
TAAAGTCAAC GACGAAATCG AAATCGTTGG TATCAAAGAA GAAACTCAAA AAGCAGTTGT	720
TACTGGTGTT GAAATGTTCC GTAAACAAC TACGAAGGT CTTGCTGGAG ATAACGTAGG	780
TGTCCTTCTT CGTGGTGTTT AACGTGATGA AATCGAACGT GGACAAGTTA TCGCTAAACC	840
AGGTTCAATC AACCCACACA CTAAATTCAA AGGTGAAGTC TACATCCTTA CTAAAGAAGA	900
AGGTGGACGT CACTCCAT TCTTCAACAA CTACCGTCCA CAATTCTACT TCCGTACTAC	960
TGACGTTACA GGTTCATCG AACTTCCAGC AGGTACTGAA ATGGTAATGC CTGGTGATAA	1020
CGTGACAATC GACGTTGAGT TGATTCACCC AATCGCCGTA GAACAAGGTA CTACATTCTC	1080
TATCCGTGAG GGTGGACGTA CTGTTGGTTC AGGTATGGTT ACAGAAATCG AAGCTTAATT	1140
CGATTTAGTT CCCAGAAGAA CAATTATTTA AGTTAGACAC TAAAAGAATC TTGCTTGGCA	1200
AGGTTCTTTT TTTAGATATT GAACTAATAC TCAATGAAAA TCAAAGAGCA AACTATAATA	1260
TATTGAAACT AGAATAGTAC ACATCTACTT CTAAACATT GTTAGAAATC GATTTGACTG	1320
TCCTGATCGA TTTGCTTGT TCTTATTTCA TTTTACTATA GAAAGTTAGC TACAGACTGC	1380
TCAAAACATT GTTTTAGGT TGTAGATAGA ACTGACGAAG TCAGTAACAT CTATACGACA	1440

1287

AGGCGAAGCT GACGCGGTTT GAAGAGATTT TCGAAGAGTA TAATACTAGA CTAAATCAA	1500
AAAGCATTAT ACAATAGTAA TATGAAATCA ATTAAAGAAG AAATCCAAAC CATCAAAACA	1560
CTTTTAAAG ACTCTCGTAC AGCTAAATAT CATAAACGCC TTCAAATCGT TCTATTTTCGT	1620
CTGATGGGCA AATCTTATAA AGAGATTATA GAACTTTTAT AGTGGTTTGA AATAAGATGT	1680
GAACAACCTCT ATCAGGAAAG TCAAACCTAAT TTATAGAAAT ATTTTAGCAG CCAAGGTGTA	1740
CTGTTATAGA TTCAATACAC TTTAGACTGT AATCAAACAA CGATTGCGG AAATGTAAAA	1800
AATATGAGGA GTTCGGACTC GACTCTCTCC TTCAAGAAAC ACGTGGTGGT CGTAACCATG	1860
CTTATATGAC GGTGAGCAA GAGAAAGTCT TTCTTGCCCG CCATTGGAAG GCTACAGAGG	1920
CAGGAGAATT TGTACAATT GATGCCTTAT TTCAGGCTTA TAAAAAGGAG TTAGGTCGTT	1980
CCTACACACG TGATGCCTTC TATCAACTGT TGAAGCGCCA TGGTTGGCGA AATATTACGC	2040
CACGTCCAGA ACATCCTAAG AAAGCAGATG CTCAAACCAT TGTCGCGTCT AAAAAATAAG	2100
TCTCAATTCA AGAAGACAAG TGAAGTGCAC CCAAAAAGTT AGACAGAAAA AATCTAACTT	2160
TTGGGGTGTT TTTATTATGA AATTAACTTA TGATGATAAA GTTCAGATCT ATGAACTTAG	2220
AAAACAAGGA TATAGCTTAG AGAAGCTTTC AAATAAATTT GGGATAAACA ATTCTAATCT	2280
TAGGTACATG ATTAAATTGA TTGATCGTTA CGGAATAGAG TTCGTCAAAA AAGGAAAAAA	2340
TCGTTACTAT TCTCCTGATT TAAAACAAGA AATGATTCAT AAAGTCTGAC ATGAAGGCTG	2400
GACTAAAGAT AGAGTTTCTC TTGAATACTG TCTCCCAAGT CGTACGATAC TTCTTAACTG	2460
GCTAGCACAA TACAGGAAAA ACGGGTATAC TATTGTTGAG AAAACAAGAG GGAGAGTACC	2520
TGAGAGCGGA GAATGCCATC CTAAAAAAGT TAAGAGAACT CCGATTGAAG GAGGAAAAAG	2580
AGAAAGAAGA AAGACAGAAA TTATTCAAGA ATTAATGACT GAGTTTTTCGT TAGATATTCT	2640
TCTAAAAGCC ATTAACTAG CTCGTTTGAC CTACTACTAT CACTTGAAAC AGCTAGATAA	2700
ACCAGATAAG GACCAAGAGC TTAAAGCTGA AATCAATCC ATTTTATCG AACACAAGGG	2760
AAATTATGCT TATCGTCGGA TTTATTTAGA ACTAAGAAAT CGTGGTTATC TGGTAAATCA	2820
TAAAAGAGTT CAAGGCTTGA TAAAAGTACT CAATTTACAA GCTAAATGC GACAGAAACG	2880
AAAATATTCT TCTCATAAAG GAGACGTTGG CAAGAAGGCA GAGAATCTCA TTCAAGGACA	2940
ATTTGAAGGC TCTAAAACAA TGGAAAAGTG CTACACAGAT GTGACAGAAT TTGCCG	2996

(2) INFORMATION FOR SEQ ID NO: 261:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 837 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double

1288

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 261:

CTTATCAACT CCGACATGG CTCTCAGACC AATCCAAATC CCTAAAAAA TCAGAACAAG	60
GATGGTGGTC AAGATCAAAC TCTCGAAATA TAAAGAAAAT AGTTGCAGTA GCATGATTTC	120
TCTCATTTCT ATCTTTTTTA AAGAGTAAAC TCAGCTAGTC CAACTAACTG AGTTTTCCTT	180
TATCTATTAT ATCAAATATA AGTCCGTTG TAACTAGCGA AGAATTCCTT TGCCCGCTCT	240
TCTTTAGGGG TGTGGATAAT CTCATCCGGA GTTCCAGACT CGATGATTTT CCCCTTATCT	300
AAGAAGAGAA TTTTATCCGC AACTTGGGCT ACAAAGGACA TGTCATGACT GACCAAAATC	360
ATGGTCTGAC CTGACTTAGC AGCATCTGCA ATAGACTTTT CTACTTCACC GACCAATTCT	420
GGGTCAAGGG CTGAAGTTGG TTCGTCTAAG AGCAAAACAT CTGGTTTCAT AGCAAGCGCA	480
CGCGCTAGGG CAACCGTTG CTTCTGTCCA CCTGATAAAT GCGGAGGATA ATGGTTTCA	540
CGGTCCGAAA GCCCAACCTT AGCCAACTCT TCCTTGCAA TCTTAGTCGC TTCTTGGTCA	600
GATAATTCTT TGACAACAAC CAAGCCTTCT TTCACATTAT CAAGTGCTGT TCGGCGTTCA	660
AACAAATTAA ACTGTTGGAA AACCATAGAC AACTTACGAC GTAGGGCAAG GATTTCTTCT	720
TGAGTGATTT TAGAAAAATC AACTGAAAAA CCATCAATCT GAATAGAGCC ACTGTCAGGT	780
GTTTCTAGAT AATTGAGACT GCGAGAAAGG TTGATTTTCA GCTCTGAAGA CCAATCA	837

(2) INFORMATION FOR SEQ ID NO: 262:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 868 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 262:

CCGAACAAAA TGGGCTAATT AGATTATAGT AAGAAAGGTA AGTTAAAAAT GAGAATTGCA	60
ATTGGATGTG ACCACATCGT AACTGATGAA AAAATGGCGG TTTCAGAATT TTTGAAATCA	120
AAAGGATATG AAGTCATTGA CTTTGGTACC TATGACCATA CACGGACTCA CTACCCAATC	180
TTTGGTAAAA AAGTAGGGA AGCTGTAAC AGCGGTCAAG CTGATCTTGG AGTATGTATC	240
TGTGGTACTG GTGTTGGTAT CAACAACGCT GTAAATAAAG TTCCAGGTGT TCGTTCTGCC	300
TTGGTTCTGT ATATGACAAC AGCCCTTTAT GCTAAAGAAC AATTGAACGC TAACGTTATT	360
GGTTTTGGTG GTAAAATTAC TGGTGAATTG CTTATGTGTG ATATCATCGA AGCTTTCATC	420



1289

CATGCTGAAT ACAAACCAAC TGAAGAAAAC AAAAAATTGA TTGCGAAAAT TGAACATGTT	480
GAAAGTCACA ATGCTCAACA AACAGACGCA AACTTCTTTA CAGAATTCCT TGAGAAATGG	540
GATCGTGGAG AATACCACGA CTAAGAGGTG ACCTATGATT TTAACAGTCA CAATGAACCC	600
ATCCATCGAT ATTTCCTATC CCTTGGATGA GTTGAAGATT GATACTGTCA ATCGTGTGGT	660
GGATGTAACC AAAACGGCTG GTGGTAAGGG ACTCAATGTT ACCCGAGTAC TTTCAGAATT	720
TGGCGATTCT GTTCTTGCTA CTGGTTTAGT GGGTGGCAAA CTGGTGAGT TTTTGGTTGA	780
ACATATCGAT AATCAAGTAA AGAAAGATTT CTTCTCAATT AAGGGAGAAA CTCGTAACCT	840
TATCGCTATT CTCCACGGAG ACAACCAA	968

(2) INFORMATION FOR SEQ ID NO: 263:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 3744 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 263:

CCGTTCAAAG TCTTCATAAG ACTCGAAAGT CACAGTTCTT TCGTTCTTGC TGGCATCTAT	60
ATAGGTAATT TCAATCATGT TAAAACTCC TTTGTTTAAT GCTAACTTTA TTTTACTCCT	120
TATAAAGAG AATGTCAAGA AAAATGATTG CGCACGCAAC TTTTTTTAAA ATCATCTTAA	180
ATCAAGAAAT CCAAACCTGC TTCCAAGCTT TCTTCGACAG TCTTTTGTAG CGAGGCCAGT	240
GTCTTTTGCC CATCATTTGT CAGGCAGATA AACTAGAGC GTCTATCTTG ATGGCAACAC	300
ATGCGACTGA GTAGACCGCA ATTTTGTAGT TCCAAGCGAG CCACCATCCT AGAAACTGCG	360
CTCGGGCTCA GATGAAGCTT ATCTGGCAGG TCAATCTGGC GTAGAGATTT TTCTTCAGCC	420
AAGTCCAGAT AGTAGAGCAG GTAGAACTCT TTCAAGGTCA GACTTTGCTC GCTCTGTTGG	480
GCAATGGTCT CTTCCAAGAG ACTTTCAATT TCTTTCTGAC GCCGATTGAA GTCAAACCAT	540
TTTTCCAAAT AGGTCATAGT GTCTCCTTTC TTTTGTAGT CATAAATAGA AGAAAGTCCA	600
TTAACGGGCA GTCTCTGCGT CACAAGATGA TTGCGCATGC AATAATTATA CTACTTTTCA	660
AGAATGCTGG CAAGCTCTGT TTTTGTAGTG TTTTATTTT GTGTGAATAA TGGGGGAATC	720
CTATTGTTTC AATTTCTAAC TCCTTATCAC ATTCGAATTC AGATTTTATT TCATTTCTCT	780
ATCTATAGTT GCTTAGTTTA AAATAAGCAT GGTCTAATAA AGCTATGCAT ATAGTACTGA	840
TTTAAACAA GGAGCATTAG ATTCCATTAA AGGAGGGCAC AGACATGTCG AGGCGGCCAA	900

1290

AGTTTTTGAT GTCGGCGTCA GAACTCTCTT CACGTGGGAA AAGAAAGACG TAAACAAGGG	960
AACTTAGAGC GGAAAAAGCG AGTCGTCAAA AAGCGTAAGA TCCCTTTAGA AGAATTGAAA	1020
GCCTTTGTAG AGGCTCATCC AGACGCTTTT TTACGGGAAA TTGCGGCCCG TTTTGATTGT	1080
GCTTTGCCCT CCGTATGGGC AGTTTAAAG CAGATTAAGG TCATTTTAAA AAAGACGACC	1140
AGTTTTAGGG AACAAAAGCC TGAGAAAGTT TCTGAGTTTC TTGATATTTT GGATAACCTA	1200
AAAGATTTAC CAGTCCTATA TATTGACGAA ACGGGAATCG ACCGCTACCT CTATCGTCTT	1260
TATGCAGGGG CTCCTAGAGG GGAGAAAGTC TATGGCAAGA TTAGCGGACG GCGTTTTGAG	1320
CGGACTAATG AGGTGGAGCA AAAACTCAAT GGTAAGTTTC TAATCAGATA TATTGATTCA	1380
CAAATTAGAG AATGAAAGAA TAATTATGCA TAAAAATAGG AATATAAACC AAAAATTAGC	1440
TGATTTATAC TCATTTGCGT GTCTTTATAA AAAACTTATC TTATAATATA TATATATATA	1500
TATACAAAAT AGTAAATGC TTTTTTTTTT TAGCAAAAAT ACCTCAAGTT TCTTGCTATT	1560
TTGGGTTCCC TATTCTATAA TTATAGTATG GTAATTTATT TATATCCATA CATGAAAATA	1620
ATACTCGAAA GGAAATTTCA AAATATTTT TAGACGTCAG AAGGGTGAAT ATAGAGAAAC	1680
AGACCGAGTA ACTCGGTTCA AATTAATCAA ATCAGGGAAG CATTGCTAC GGGCCTCGAC	1740
TTCTCTTTTT GGCTTGTTTA AGGTCTTGGC AGGTGGTGT GATACTACTC AGGTCATGAC	1800
CGAAACGGTA GAAGATAAAG TAAGTCATTC AATTACTGGG CTTGATATCC TCAAGGGGAT	1860
AGTTGCTGCG GGAGCTGTCA TAAGTGAAC CGTTGCAACT CAAACGAAGG TATTACAAA	1920
TGAGTCAGCA GTACTTGAAA AACTGTAGA GAAACGGAT GCTTTGGCAA CAAATGATAC	1980
AGTAGTTCTA GGTACGATAT CTACAAGTAA TTCAGCGAGT TCAACTAGTT TGTGAGTTT	2040
AGAGTCGGCA AGTACATCTG CATCTGAGTC AGCCTCAACC AGCGCTTCGA CCTCAGCAAG	2100
TACAAGTGCA TCAGAATCAG CAAGTACATC GGCTTCGACA AGTATTTCTG CATCATCTAC	2160
TGTGGTAGGT TCACAAACAG CTGCCGCTAC AGAAGCAACT GCTAAGAAGG TCGAAGAAGA	2220
TCGTAAGAAA CCAGCTAGTG ATTATGTAGC ATCAGTTACA AATGTCAATC TCCAATCTTA	2280
TGCTAAGCGA CGCAAGCGTT CAGTGGATTG CATCGAGCAA TTGCTGGCTT CTATAAAAAA	2340
TGCTGCTGTT TTTTCTGGCA ATACGATTGT AAATGGCGCC CCTGCAATTA ATGCAAGTCT	2400
AAACATTGCT AAAAGTGAGA CAAAAGTTTA TACAGGTGAA GGTGTAGATT CCGTATATCG	2460
TGTTCCAATT TACTATAAAT TGAAAGTGAC AAATGATGGT TCAAAATTGA CCTTTACCTA	2520
TACGGTTACG TATGTGAATC CTAACAACAA TGATCTTGGT AATATATCAA GTATGCGTCC	2580
TGGATATTCT ATCTATAATT CAGGTACTTC AACACAAACA ATGTTAACCC TTGGCAGTGA	2640
TCTTGGTAAA CCTTCAGGTG TAAAGAACTA CATTACTGAC AAAAATGGTA GACAGGTTCT	2700

1291

ATCCTATAAT ACATCTACAA TGACGACGCA GGGTAGTGGG TATACTTGGG GAAATGGTGC	2760
CCAAATGAAT GGTTCCTTTG CTAAGAAAGG ATATGGATTA ACATCATCTT GGA CTGTACC	2820
AATTACTGGA ACGGATACAT CCTTTACATT TACCCCTTAC GCTGCTAGAA CAGATAGAAT	2880
TGGAATTAAC TACTTCAATG GTGGAGGAAA GGTAGTTGAA TCTAGCACGA CCAGTCAGTC	2940
ACTTTCACAG TCTAAGTCAC TCTCAGTAAG TGCTAGTCAA AGCGCCTCAG CTTCAGCATC	3000
AACAAGTGGC TCGGCTTCAG CATCAACCAG TGCCTCGGCT TCAGCGTCAA CCAGTGGCTC	3060
AGCTTCAGCA AGTACCAGTG CTTCAGTCTC AGCATCAACA AGTGCTTCAG CCTCAGCATC	3120
GACAAGTGCC TCGGCTTCAG CAAGCACATC AGCATCTGAA TCAGCGTCAA CCAGTGCTTC	3180
GGCTTCAGCA AGTACCAGTG CTTCAGCTTC AGCATCAACC AGCGCCTCGG CCTCAGCAAG	3240
CACCTCAGCT TCTGAATCGG CCTCAACCAG CGCCTCGGCC TCAGCAAGCA CCTCAGCTTC	3300
TGAATCGGCC TCAACCAGCG CCTCAGCCTC AGCATCAACG AGTGCTTCGG CTTCAGCAAG	3360
CACAAGCGCC TCGGCTTCAG CATCAACGAG TACGTCAGCT TCAGCGTCAA CCAGTGCTTC	3420
AGCCTCAGCA TCAACAAGTG CGTCAGCTCA GCAAGTATCT CAGCGTCTGA ATCGGCATCA	3480
ACGAGTGCGT CTGAGTCAGC ATCAACGAGT ACCTCAGCCT CAGCAAGCAC CTCAGCTTCT	3540
GAATCGGCCT CAACCAGTGC GTCACCTCAG CATCGACAAG CGCCTCAGCT TCAGCAAGTA	3600
CCAGTGCTTC AGCCTCAGCG TCGACAAGTG CGTCGGCCTC AACCAGTGCA TCTGAATCGG	3660
CATCAACCAG TCGCTCAGCC TCAGCAAGTA CTAGTGCATC GGCTTCAGCA TCAACCAGTG	3720
CCTCGGCTTC AGCGTCAAAC AGTG	3744

(2) INFORMATION FOR SEQ ID NO: 264:

- (1) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 795 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 264:

CGATAAAGAG GCCTTGAGTA ATCTCAATTT GCAGATTGAA AATGGAGAGA TTATGGGCTT	60
GATTGGTCAT AATGGGGCTG GAAATCGAC CACTATAAAA TCCCTAGTCA GTATCATTTT	120
ACCCAGCAGT GGTGCTATTT TGCTAGACGG TCAGGAGTTA TCGGAAAATC GCTTGGCTAT	180
TAAACGAAAG ATTGGCTACG TAGCAGACTC GCCTGACTTA TTTTACGCT TAACGGCCAA	240
TGAATTTTGG GAATTGATCG CCTCATCCTA TGATCTGAGT AGATCTGACT TGGAGGCTAG	300

1292

TCTAGCTAGG CTATTGAACG TTTTGTGATT TGCTGAAAAT CGCTATCAGG TTATTGAAAC	360
TCTTTCTCAC GGAATGCGTC AGAAAGTCTT TGTCATCGGA GCACTCTTGT CTGATCCCGA	420
TATTTGGGTC TTGGATGAAC CCTTGACTGG TTTGGATCCC CAGGCTGCCT TTGATTTGAA	480
ACAGATGATG AAGGAACATG CACAAAAAGG GAAGACAGTC TTGTTTTCAA CTCATGTCCT	540
AGAGGTGGCA GAGCAAGTCT GTGATCGGAT TGCCATTTTG AAAAAGGGGC ATTTGATTTA	600
TTGTGGTAGT GTAGAGGACT TGAGAAAAGA TTACCCAGAC CAGTCTTTGG AAAGTATCTA	660
CCTTAGTCTT GCTGGTAGAA AAGAGGAGGT TGCGGATGCG TCTCAAGGTC ATTAATAAAT	720
TAGTTGATAT CAATATCCTT TATTCATCTC AAGAAGCTAA TCTGGCTAAT CTACGAAAGA	780
AGCAGGCTAA GAATC	795

(2) INFORMATION FOR SEQ ID NO: 265:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2231 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 265:

TGTAATGTG CTTGGCAGCw TCCTTGACAC TGCTACTACC ATTTCCCATATA GCGACCGACA	60
TACCAACGCC AGCCAGCATT TCAAGATCAT TATCTGAGTC ACCAAAAGCC ATGACTTGGT	120
TGAGGTCAAA GCCATATTCT TTCCCAACTC GGCGAATGCC TTCTAATTTA GAATTTCCCT	180
GATTGATGAC ATCCGATGCA AAAGGATTGC TACGTGTCAA TTTCAAGTCT TCAAAATCAG	240
CTGCCGCCTT CTCAGATTCT TCTGGTGTCA TCAGCATCAA AACTTGGTAG ATAGGCTGAT	300
TCATCAGGTG AAGCAGGTCC TCTTCCTTTT GGGGAACAAC CTTGCTGACC ATGCGATTAA	360
AAGACTGACT CACCGTCCGA GTTAAAACAG AGGGAACGAA GCGACTAATT CGTTGGGAAA	420
AAGAACCAG ACCAAAGGAC ATGATTTTAG AACCCAACAT GGCATCCTTG GTCCCTAGAG	480
CAATCTCCGT GCCCTCTTTT TTAGCATAGC TAATTAGATG GCGCAATGT AACTTGGAAA	540
TAGGGCTCGT GAACAAGACT CTGTCTTTAC TAAAGATATA CTGGCCATTA TAGGTTACCG	600
CAAAATCCAG ATCCAAATCG TCCATCAATT CCTTAACAAA AAAAGGTCCT CGCCCTGTCTG	660
CTACGCCAAC TAGTACCCCT TGTCTTTGA CAATCTTAAT CGCATCCTTA GTGGATTTC	720
AAACACTCTT GCGATTGTTG ACCAAGGTTT CATCGATATC AAAAAAACA GCTTTGACTT	780
CCATCCTATC CCAATCTCCC CTTTGTGAT ACAATGATTA TACCACATTT CAGAAAGAGT	840
GAGTAAATCA TGCCTAAGAA AATCCTTGTT TTACATACGG GTGGAACTAT TTCCATGCAG	900

1293

GCCGATGCTT CTGGCGCTGT TGTGACGAGT TCAGATAATC CCATGAACCA TGTGTCCAAC	960
CCACTTGAAG GAATCCAAGT CCACGCCTTG GACTTTTTTA ACCTTCCAAG TCCCATATC	1020
AAACCCAAAC ATATGCTGGT CCTCTACCAG AAAATTAAAG AGGAAGCAGA TAACTACGAT	1080
GGAGTGGTGA TCACACACGG AACCGATACT TTAGAGGAAA CAGCCTATTT CTTGATACC	1140
ATGGAAGTTC CCCATATGCC TATCGTTCTA ACAGGAGCCA TCGGTACCC AATGAGCTCG	1200
GTAGTGATGG TGTTTATAAT TACCTAAGTG CTTTACGAGT GGCCAGCGAT GACAGGGCTG	1260
CTGACAAAGG AGTTTGGTC GTTATGAACG ATGAAATCCA CGCTGCCAAG TATGTCACCA	1320
AAACACATAC GACTAATGTC AGCACCTTCC AGACTCCAAC ACATGGCCCC CTTGGTCTCA	1380
TCATGAAACA GGAAATCCTC TACTTCAAAA CAGTGAAACC TCGTGTTCGC TTTGACCTTG	1440
ATCACATACA AGGTTTAGTC CCTATCATCT CGGCTTATGC TGGTATGACA GATGAGCTGA	1500
TTGATATGCT GGATTTAGAA CACTTGGACG GTTTGATTAT CCAAGCCTTC GGAGCTGGTA	1560
ATATTCCCAA AGAAACGGCT CAAAAATTAG AAAGCCTTCT GCAAAAAGGA ATTCCAGTCG	1620
CTCTGGTATC ACGATGCTTT AACGGTATTG CCGAGCCTGT TTATGCATAC CAGGGTGGGG	1680
GCGTACAGTT GCAAAAAGCA GCGTTTTCT TTGTTAAAGA ACTCAACGCC CAAAAGCTC	1740
GCTTGAAACT CCTCATCGCC CTCATGCCG GACTAACAGG ACAGGCTTTG AAAGACTATA	1800
TGGAAGGCTA ATACTCTTCG AAAATCTCTG CAAACCAGT CACGTGCGCT TACCGTATGT	1860
ATGGTACTGA CTTGTCAGT TTCATCTACA ACCTCAAAAA CATGTTTTGA GCTGACTTCG	1920
TCAGTTCTAT CTACAACCTC AAAACATGT TTTGAGCTGA CTTGTCAGT TCTATCTACA	1980
ACCTCAAAAA CATGTTTTGA GCTGACTTCG TCAGTTCTAT CTACAACCTC AAAACATGT	2040
TTTGAGCTGA CTTGTCAGT TCTATCTACA ACCTCAAAAA CATGTTTTGA GCTGACTTCG	2100
TCAGTTCTAT CTACAACCTC AAAACATGT TTTGAGCTGA CTTGTCAGT TCTATCTACA	2160
ACCTCAAAAA CATGTTTTGA GCTGACTTCG TTAGTTTCAT CTACAACCTC AAAACATGT	2220
TTTGAGCTGA C	2231

(2) INFORMATION FOR SEQ ID NO: 266:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1310 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 266:

1294

GAGTCAAAGG CTCCGAGGTT GACTTTTTTAC AAGGGGACAG GTGAATATTA TCTAGACCTG	60
TCAGAAATTC TCTTCTTTGA AACAGAAGGG AGCAAGATCT ACGCTCATAA CCAGAAGGAA	120
GCTTATGAGG TTCGCCTCAA GCTCTATGAG TTGGAGTCTA TCTTGCCTCG CTATTTTAAT	180
CGAGTTTCCA AGTCAACGAT CGCAAACATC CGTCAGATTT ACTCAGTGGG CAAGTCCTTT	240
TCAGGAACGG GCACCATTTT CTTTATCAG ACGCACAAGG AGGTTTCATGT CTCACGGCAT	300
TACCAATCCC TCCTAAAAGA AAATCTAAGA AACATGAGGT AAAAAACATG AAAAGAAAG	360
CATTTGGTAT TGTTTTATTG GTTTTAGCAG CTTGGATCTT GCTGCAAGGG AATTTTGGAA	420
TTCTTCTTTT GGATGGTAAA ATATGGCCTT TACTAGGTAT TGTTTTTTTT GCTTATAAGT	480
CCATTGAGTC CATCCTTAGA CGTCATCTCA CTTGGGCAGT TTTTACAGGT TTAGTGGCGC	540
TCATCATTGC AAATTACGCT TATGACTTGT TACCAGTTAC CAATCATTCT CTTATTGGG	600
CTAGCATCTT GGTGGTACTT GGTGTTGGTT ATCTGACGCA TTCAAGTAAG TTCTGGAATG	660
AAAAAAAATG GTGGTACAAT GGGAAAAAAA CAGTCGTCAC GGATAAGGAA GTCGCTTTTG	720
GTAGCGGGAC CTTCTATAAG CAAGATCAAG ATCTCGTAGA TGACCAAGTG GAAGTCGCTT	780
TTGGGGATGC TAAAATCTAC TATGATAATG CAGAGATGCT AGGTGATTTT GCAACTTTAA	840
ATATTGAAGT GGCCTTCGGG AATGCAACCG TCTATGTTCC ACAACACTGG CGTGTAGATT	900
TGAAAGTAGA AACCTCCTTT GGTGCAGCTA AGGCTGACGC TCCTGTAGCC CCAACCAGCA	960
AAACCTTGAT TATCCGTGGA GATGTGGCTT TTGGGAAGTT GGAAATTGTC TACGTTAAAT	1020
AAAAAATCT TCACTTCAAC CATCAAAATA GACGTACTAA GAGTAGGAAA TTGATGCCTT	1080
GCTCTGATTT CAGTCTATG GTTGTTAGAC TTTAAAAAAT GAAATGCTGC CTTTAAAGT	1140
TGTATATTTT TCGATATTTT GGCTTTTACG TTTGATGTAT CTATGTACTA CAGCGTAGAT	1200
GATGTAGTGT CAAATGCTTT TAAAAACGG ATGATATTGG ACAGTTTTTT TGCCTTTAAT	1260
TGCTCAGGAA CCATGAAAGT CAGTACCTGG GTTTATGACA AGGGAGAATG	1310

## (2) INFORMATION FOR SEQ ID NO: 267:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 5922 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 267:

ACTCTGATTT GATTGGAACG ACAGTCGGTG CCATTGCAGT TACTTCAAAC GTAACGACTT	60
ATGTTGAGTC TGCTGCTGGT ATCGGTGCAG GTGGACGTAC TGGTTTGACA GCCTTG GTTG	120

1295

TAGCTATCTG TTTTGGGATT TCAAGCTTCT TTAGCCCACT TCTAGCGATC GTACCAACAG	180
CGGCTACAGC TCCAATCTTG ATTATCGTTG GGATTATGAT GCTTGGTAGC TTGAAAAATA	240
TCCATTGGGA TGATATGTCT GAAGCAGTTC CTGCCTTCTT CACATCTATC TTTATGGGAT	300
TCAGCTACTC TATCACTCAA GGGATTGCAG TTGGTTTCTT GACTTACACT TTGACTAAGC	360
TTGTAAAGG TCAAGTTAAA GATGTTTCATG TCATGATTTG GATTTTGGAT GCCTTGTTTA	420
TCCTTAACTA CATCAGCATG GCCTTATAAT AGAATGACCC AGGGGGATT TCCCCCTTTT	480
TTAATACAAG GAGATAGGTG ATGAAAGAGA AAAATATGTG GAAAGAATTG TTGAATCGTG	540
CAGGCTGGAT TTTGGTCTTT TTAAGTCCCG TCCTTTTATA TCAGGTTCCC CTAGTGGTTA	600
CCTCTATTTT GACTTTAAAA GAAGTAGCCC TGCTACAGTC AGGGCTGATA GTTGCTGGCC	660
TTTCAATTGT GGTTCGGCT CTATTTATTA TGGGAGCTCG TAAAACCAAG TTAGCTAGTT	720
TTAATTTTTC TTTTATTAGA GCTAAAGATT TGGCAGCTT GGGCTTGACT TATCTAGTTA	780
TTGTGGGTC AAATATACTT GGTTCATTT TATTGCAACT GTCAAATGAG ACGACAACAG	840
CTAACCAGTC TCAGATTAAT GATATGCTTC AAAATAGTTC GTTGATTTC AGTTTCTTCT	900
TGCTAGCCTT GCTTGCTCCG ATTTGTGAGG AAATCTTGTG TCGTGGGATT GTTCTAAAA	960
AGATTTTCCG AGGCAAGGAG AACTTGGGAT TTGTAGTCGG TACGATTGTG TTTGCTTTAT	1020
TGCATCAACC AAGTAATTTA CTTCTTTTAT TGATTTATGG AGGTATGTGC ACAGTTCTAT	1080
CTTGGACAGC CTACAAGACC CAACGTTTGG AAATGTCGAT CTTGCTTCAC ATGATTGTTA	1140
ATGGGATTGC TTTCTGTTG TTGGCTCTTG TGGTGATTAT GAGTCGGACA TTAGGAATTT	1200
CTGTTTAAAA GTTTTATGT AGGAACCGAC CTCCTTCTAC CAGGGAAAGA TGAATGCAAT	1260
CGTGTCATC TTTTCTTTT TATGGTAAAA TAGAAAAATA ATATGATGAA AATCCTTGAG	1320
GGAGTGACCG ATATGTCAAG TAAAGCCAAT CATGCAAAGA CAGTTATTTG CGGAATTATC	1380
AATGTAACCC CAGACTCCTT TTCGGACGGT GGTCAATTTT TTGCTCTTGA GCAGGCGCTC	1440
CAGCAGGCTC GTAAATTGAT AGCAGAAGGA GCCAGTATGC TAGATATCGG CGGAGAATCC	1500
ACTCGGCCGG GAAGTAGCTA TGTGAGATA GAAGAGGAAA TCCAGCGTGT TGTCCAGTG	1560
ATCAAAGCGA TTCGCAAGGA AAGTGATGTC CTCATCTCTA TTGATACTTG GAAGAGTCAA	1620
GTAGCAGAGG CTGCTTTGGC TGCTGGTGCC GATCTAGTCA ATGATATCAC TGGTCTTATG	1680
GGTGATGAGA AAATGGCTTA TGTGGTAGCT GAAGCGAGAG CGAAAGTGGT CATCATGTTT	1740
AACCCAGTTA TGGCTCGACC TCAGCATCCT AGTTCGCTTA TCTTCCCTCA TTTTGGTTTT	1800
GGTCAAACCT TTACAGAAAA AGAGTTAGCT GACTTTGAAA CATTGCCAAT CGAAGACTTG	1860

1296

ATGGTGGCTT TCTTTGAACG AGCACTAGCG AGAGCGGCAG AAGCTGGTAT TGCACCAGAA	1920
AATATCCTGT TGGATCCAGG AATTGGCTTT GGTCTGACCA AGAAAGAAAA TCTGCTTCTT	1980
TTACGGGACC TGGATAAACT ACATCAGAAG GGCTATCCAA TCTTTCTCGG AGTGTGCGGC	2040
AAGCgATTG TCATCAATAT CCTAGAGGAG AATGGTTTTG AAGTCAATCC TGAGACAGAG	2100
CTTGTTTTCC GAAATCGGGA CACGGCTTCG GCTCATGTAA CTACTATCGC TGCAGACAG	2160
GGTGTAGAAG TGGTGC GCGT GCATGACGTA GCTAGTCACA GGATGGCAGT TGAAATTGCC	2220
TCTGCCATTC GTCTGGCTGA TGAAGCGGAA AATTAGATT TAAAACAATA TAAATAAGAT	2280
GAAAGAAATT GAAAACAATC AGTGGATTGC TAACTACCGG ACGGATCAAC CGCATTTTGG	2340
CTTGGAACGA ATGGTGAAC TCTTAGCTTT GCGTGGCAAT CCCCATCTCA AACTCAAGGT	2400
CCTCCATATC GGAGGGACTA ACGGCAAGGG CTCGACTATT GCTTTTTTGA AAAAGATGCT	2460
AGAAAAGCTA GGGTTGAGAG TTGGCGTGT TAGCTCGCCC TATCTCATTC ATTACACAGA	2520
CCAGATTAGC ATCAATGGGG AATCGATCTC AGAAGCGAGG CTAGAAGCTC TCATGGCAGA	2580
CTATCAGTCT TTGCTGGAGG GAGAAGCGGT CGCCAATTTA CAGGGCACAA CCGAGTTTGA	2640
GATTATCACA GCCCTGGCCT ATGACTACTT TGCCTCAGAG CAAGTAGATG TGGCCATCAT	2700
GGAAGTTGGC ATGGGTGGAC TTTTGGATAG TACCAATGTC TGTCAGCCCA TTTTGACAGG	2760
AATTACAAC ATTGGCTTGG ATCATGTGGC TCTACTTGGT GACACCTTGG AGGTCATAGC	2820
AGAGCAGAAG GCAGGTATTA TCAAACAAGG GATGCCCTTG GTAACAGGGC GTATTGCTCC	2880
AGAAGCCTTG GCTGTGATTG ACCGCATTGC GGAAGGGAAA GATGCGCCGA GACTTGCTTA	2940
CGGGACAGAT TATCAGGTTT GTCATCAAGA AAGTGTGGTG ACAGGGGAAG TCTTTGACTA	3000
TACAAGTGCT GTCAGACAAG GTCGCTTCCA GACTAGCCTG CTTGGTTTGT ACCAAATAGA	3060
GAATGCTGGG ATGGCCATAG CTTTACTTGA TACTTTTTGT CAAGAAGATG GTCGAGAGCT	3120
AGCAAGCAAT GATTTTCTTG GTCAAGCCTT GGAAGAAACA AGTTGGCCAG GGCCTTTGGA	3180
AATCGTGTC AGAGATCCCT TGATGATTTT GGATGGAGCC CACAATCCCC ATGCTATCAA	3240
GGCCTTGTG GTAACCTTGC AAGAACGTTT TCGGATTAT CATAAGGAAA TCCTCTTCAC	3300
TTGTATCAAA ACCAAGGCCT TGGAGGATAT GTTGGACTTG CTGGGAGCCA TGCCAGTTAC	3360
CGAGCTTACT CTAACACATT TTGCGGATAG TCGGGCGACG GATGAAAACG TGCTGAAAGA	3420
GGCAGCTAAG TCTAGAAATC TCAGCTACCA AGATTGGCAT GATTTTCTAG AGCAGAATTT	3480
GACAGATAAA AAAGAAGAGA AACAAACAGT TAGGATTGTC ACAGGTTCTT TGTATTCTT	3540
GAGCCAAGTG AGGGCCTATC TGATGGAGAG GAAGAACGAG AATGGATACA CAAAAGATTG	3600
AAGCGGCTGT AAAAATGATT ATCGAGGCTG TAGGAGAGGA CGCTAATCGC GAGGGCTTGC	3660



1297

AGGAAACACC TGCTCGTGTA GCCCGTATGT ATCAAGAGAT TTTTTCAGGT CTGGTCAAAA	3720
CAGCAGAGGA ACATTTGTCA AAATCCTTTG AAATTATTGA CGATAATATG GTGGTAGAAA	3780
AGGATATCTT TTCCATACC ATGTGTGAAC ACCACTTCTT GCCATTTTAT GGTAGAGCGC	3840
ACATTGCCTA CATTCCAGAT GGTCGTGTGG CAGGCTTGTG TAAGCTAGCC CGTACGGTTG	3900
AAGTTTATTC GAAAAACCA CAAATTCAAG AACGTTTGAA TATCGAAGTG GCCGATGCCT	3960
TGATGGACTA TCTAGGTGCT AAAGGAGCCT TTGTGTGCAT TGAGGCGGAA CATATGTGTA	4020
TGAGTATGCC TGGTGTTAGA AAACCAGGCA CTGCAACCTT GACGACAGTA GCTCGTGGTC	4080
TATTTGAAAC AGATAAGGAT CTCCGTGACC AAGCTTATCG TTTAATGGGG CTATAAAAAG	4140
AATCCGCTTC AAGCGGATTT TTCTAGAAAG GAATCATTAT GGATCAACTG CAGATTAAGG	4200
ATTTGGAAT GTTGCCTAT CATGGTCTTT TTCCTAGTGA GAAAGAATTG GGGCAGAAAT	4260
TTGTGTTTC AGCCATCCTA TCCTATGATA TGACCAAGGC AGCTACAGAC TTGGATTTAA	4320
CAGCCTCTGT CCATTACGGA GAATTGTGTC AGCAGTGGAC GACTTGGTTT CAGGAAACGA	4380
GTGAAGATTT GATTGAAACG GTAGCCTATA AACTGGTGA ACGTACCTTT GAGTTTTATC	4440
CTCTTGTCCTA AGAAATGAAG TTGGAACCTG AAAAACCTTG GGCACCGGTG CATTTGTCAC	4500
TAGATACTTG CTCGGTAACC ATTCATCGCC GCAAGCAACG AGCCTTTATC GCCCTAGGAA	4560
GCAATATGGG AGATAAACAA GCAAACCTGA AGCAAGCCAT TGACAAACTG CGAGCTCGTG	4620
GCATCCATAT TCTCAAGAG TCCAGTGTCT TAGCGACGGA GCCTTGGGGT GGAGTGGAGC	4680
AGGATAGCTT TGCCAATCAA GTGGTTGAGG TGGAAACCTG GCTACCAGCA CAAGACTTGT	4740
TAGAAACCTT GTTAGCCATT GAGTCAGAGC TGGGACGGGT GAGAGAAGTG CATTGGGGAC	4800
CTCGTTTGAT TGATTTGGAC TTGCTCTTTG TGGAGGACCA GATCCTTTAT ACAGACGACC	4860
TCATATTGCC TCATCCTTAC ATAGCGGAAC GCCTTTTTGT CCTTGAGTCT TACAGGAAAT	4920
TGCGCCTCAT TTTATCCATC CGATATTAAA ACAACCGATC CGCAACTTGT ATGATGCTTT	4980
GAAAAAATAG AAAAATCTA GTTTTCAGTT ACTTGCAACT GAAGGCTAGA GTTTTATAC	5040
TCTTCGAAAA TCTCTTCAA CCACGTCAGC GTCGCCTTAC CGTACTCAAG TACAGCTTGC	5100
GGCTAGCTTC CTAGTTTGCT CTTTGATTTT CATTGAGTAT TAAAATAGGT CATTTTCTTC	5160
TGGGAGGAGG ATAGTTTCTC TACCGTCCAT GTCTAAAACC AGTACTCTTG GGGGATAACG	5220
AGGGTCGAAA GGATGGTTAA ACTCAAAATC AATGGCTGTA GGGAGGTGTT GACTTGAAAA	5280
GTGGAAGGTA ATCTTTCCTT GOTTATTAAG CAATTGAAAC TCGAGTTCTT CTTCCAATTC	5340
AAAGACATTT TTTAAGAAAT GGTCGATGAT ATACCAAAAA GAGTCAATGA TGTCATCAGG	5400

1298

CAAGCTGGTA ACAATACCAA AACTAGCAGA TCGCATGTGG GTATTGGTAA AAGCCATATC	5460
TCTGTCCCCT TTCTTTTCCC TTATCATACA GCAATAGGA TAAAAATCA AGAAAAGGTG	5520
ATTTTTTGAA AAGGATTITA GTTACAGGGA GAAATAGGGA AAAAATTCCT AAAAATCTAC	5580
CGAAGTTAAT AGGTAAATTC CCAAATTAAC TTGATTATAT AACTTTCAGT TACTTTGAGA	5640
AGTTACCGAA AAATATTTT CATATCTATT GACTTTTAGG GGTAATAATTT GGTATGATAG	5700
TAGGCGGTAT TGTTTACCCC ATTTGAAAGG CCCCAGGAACC TTCCAAATAC TTTTCGATGG	5760
GAAGGAACAC CCATCACCCT AAACAAAAAT CGAACTATAT ATAGGAGAAA TCATGAACAA	5820
AACAACATTT ATGGCTAAAC CAGGCCAAGT TGAACGTAAA TGGTACGTAG TTGACGCAAC	5880
TGATGTACCA CTGGACGTC TTTCTGCAGT AGTTGCTAGC GT	5922

(2) INFORMATION FOR SEQ ID NO: 268:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1988 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 268:

TAATATCTA CGATGAGCTG TTGTGATTCT CATTAGTTCC CCTTTCCCAA GAGGCATAGG	60
GGTGCGCATA ATAGATGTGC TCCTCAGAAA ATATATCAAA CAAGCGATTG AATTCCGTTT	120
CATTATCTGC CGTGATGGAA AGAATCTTGT GTTGTMTTAA GATGAGTTTT AGAGCCTGAT	180
TGACCACCTC AGCACTTTTA TTTGGAATCA ATCGGATGAT CTGATGTCTA CTCTTTGAT	240
CCGTCAAGAC AATCAAGCAG TAGTTTTTCG ATCTCGTAAG TAGAACCGTA TCAATCTCAT	300
AATGCCCAT TCTCAAGCGA AGATTGATAG CTTCAGGCCG CTGTTGATG GATTGACCAG	360
CAGGTTTAAA GTTGGTGCTA GCCTGTTTCT TAAGCGCTTT TCCTTTTCTA GGGTAAAGCA	420
AATCCTGCTT GCTTAACCCC AATTTTCCAT GATGAATCCA ATAGTAAATG GTTGAAATTC	480
CCACGTTAAC CCCTTTAGCC ATAACCATCA TTTCAGGCGA AAATTTTGG TTATGATAGT	540
GGAGAATCTT TTCCTTTAGT TCCTTGGTCA AGCTTGATTT CTTGACCGAG CGCTTGCGAT	600
TGTTTTTATA AGACTGTTGA GCGTAGTCGG CAGAATAAAC CTCTTTGAAG CGCCCTTTTC	660
CAAGACATTG TCGGACTGTC CCACGCTTGA TTTCAGTGTG ATAGTTTGAG GAGCTTTTCC	720
AAGTAGAGAG GCAATTTCTC TATTTGATTT TCCTTCTTTT TTCCATCTTT CGATTAAGCG	780
ACGGCTATCG ATTGTCAAAT GTTTGGCTTT TGTAGTATAA TTGTCTTGCA TCTCTGTGCC	840
TTTCTTGTGT TTGTGGTTGA ACAACAAGTA TAACACAGAG GTGCTTTCTT ATGCCTACAA	900

1299

GAGCTTTCAT TATTTCCATT TTCTTTTGGG TTTCACCTCTA TTCTGAAAAA CTGTGTATATA	960
TTTACTGAAG CTAGCAAGTC TTACCTGTAA ATTTAATGAA AGCAACACAA AATCCGAGAG	1020
GGGAATCTCG GATTAATAGA TAGAGAGTTT TTAGTTTAAA TAAATTGTTT AAAATATCAA	1080
CAACATCACT TCTTTTCTTA ACCTGATAAG TCTTGATTCC TAATTTTGGG GCTACGATTA	1140
TATTGTCTC AATATCGTCT AGAAAGACAC AATTCTAGG TTATAACTGG TATTTATCGA	1200
TAGTTACTCA TATACATCAG TCCACCTCCA TACTTATGTG CGAGCCTCTC TTTGTATTAT	1260
ACCTCCATAC TCACCTTACA GATTCTTTTG GTAATAATAT CTTTGCCTAA TGTAGAGACA	1320
GTCTTGCAA GAAAAAACTT CTTGTAGCC ATGTTTCTGA TAAAAGTCCG GTGCCTGGAA	1380
CTGGTAAGTA TTGACAAAGG CAAAACAACA ATTCGATTG TTAGCTTCAC TTTCTGCCTG	1440
TTGCAATAGT TTTGAACCGA TTCCTTGCCC TCGCAGTTCC TCTTTTACAA ACAAATACTC	1500
GATTTCTAGC CAATTTCCAA AAGTCTCTGC TATCAAACCT GCCAGGAGAT TGCCCTTTTC	1560
ATCTTCGACA TAAAGATTAA GTGGCTCACT TTCAGCCTCT TCTCTTTTGG AACGGTTATA	1620
AACACGAATC AGATTCCCTA TTTCTTGCGA TTTATGTGAT TCCTTATTTT CCAATCTAAA	1680
GTATAGTGAA ATGAAATAAA ACATGCGCAA ATCGATTAAG GAATTTAATC TAATTTCTAA	1740
CAATGTCTTA GAAATCAAAG TGTACTATTT TAACTTCAAT CCACTATACA TCTAATACTC	1800
AATAAAAAATC AAAGAGCAA CTAGGAACT AGCCGCAGGT TGCTCAAAAC ACTGTTTTGA	1860
GGTTGTAGAT AGAACTGACG AAGTCAGCTC AAAACATAGT TTTGAGGTTG TAGATGAAAC	1920
TGACGAAGTC GGCTCAAAAC ATGGTTTTGA GGTGTAGAT GAAACTGACG AAGTCAGCTC	1980
AAAACAGG	1988

## (2) INFORMATION FOR SEQ ID NO: 269:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 709 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 269:

CCGGATATTT GTTTTATGTA ATTTTCTTGC AAGTTTCTTC TTAGTAGCTT GTCAGTCAGG	60
TTCTAATGGT TCTCAGTCTG CTGTGGATGC TATCAAACAA AAAGGGAAAT TAGTTGTGGC	120
AACCAGTCCT GACTATGCAC CCTTTGAATT TCAATCATTG GTTGATGGAA AGAACCAGGT	180
AGTCGGTGCA GACATCGACA TGGCTCAGGC TATCGCTGAT GAACTTGGGG TTAAGTTGGA	240

1300

AATCTCAAGC ATGAGTTTGG ACAATGTTTT GACCACTCTT CAAACTGGTA AGGCTGACCT	300
AGCAGTTGCA GGAATTAGTG CTA CTGACGA GAGAAAAGAA GTCTTTGATT TTTCAATCCC	360
ATACTATGAA AACAAGATTA GTTCTTGGT TCGTAAGGCT GATGTGGAAA AATACAAGGA	420
TTTAACTAGC CTAGAAAGTG CTAATATTGC AGCCCCAAAA GGGACTGTTT CAGAATCAAT	480
GGTCAAGGAA CAATTGCCAA AAGTTCAATT AACTTCCCTA ACTAATATGG GTGAAGCAGT	540
CAATGAATTG CAGGCTGGAA AAATAGATGC TGTTCATATG GATGAGCCTG TTGCACTTAG	600
TTATGCTGCT AAAAACGCTG GCTTAGCTGT CGCAACTGTC AGCTTGAAGA TGAAGGACGG	660
CGACGCCAAT GCCGyTGCTC TTAGAAATA GTGATGATTT GAAAGAAGT	709

## (2) INFORMATION FOR SEQ ID NO: 270:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1680 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 270:

TATAAAATGT TAAGTTAAAT GATTTCAAAA TTCAGAAAGG GATTGCTTTA TGCAGTTCCT	60
TTTTATTTTA ACAGGAGTGA AACTATAGTG TTTCTAAATT GTGAATCAAT CAAAAGTATG	120
TGTGATGGGG CTATTCTAGC TTTAGAAACC TTCAAAAATT AAAATTTAAG GCAATCAATT	180
ACTTGGAAGA GTATGAAAGC ATTTAGTTTA TAGGAATTCT AGGTCTAGAA TTACATATAT	240
ATATTTATGA AGACGGGGTG TTCGATAGTT AGTATTGTTT TATTCTGAAA GATTTGAGCT	300
GTCAGTTGTA TAGAAAGTGT TCGAATTTTT TTAAGTGATT AAATTAGTTA ATTGTATGAG	360
GTGCTTTATG ATATAATGTT CTTAATGAAT TTTCAGAAAG GAAAACCTCA AATTGTTCTA	420
CAAATTTCTA CTCTTCGACC TCGACCACAC TCTTCTTGAT TTTGATGCTG CTGAGGATGT	480
GGCTTTGACC CAACTTCTAA AAGAAGAAGG AGTTGCGGAT ATTCAGGCTT ATAAAGATTA	540
TTACGTTTCT ATGAACAAGG CTCTCTGGAA AGACTTGGAG CTGAAGAAAA TCAGTAAACA	600
AGAGCTGGTT AACACGCGCT TTTCTCGTTT ATTTGCTCAT TTTGGACAGG AAAAAGACGG	660
TAGTTTTCTT GCCCAGCGTT ACCAATTTTA CCTCGCCAG CAGGGACAAA CACTATCGGG	720
CGCTCATGAT CTCTTGGACA GCCTCATTGA GCGTGATTAT AACTTGTATG CTGCGACAAA	780
TGGCATTACT GCCATTCAGA CAGGACGTTT GGCTCAATCT GGTCTAGCAC CTTATTTCAA	840
TCAAGTCTTT ATCTCAGAAC AGTTGCAAAC TCAAAAGCCG GATGCTCTTT TTTATGAAAA	900
GATTGGCCAG CAAATTGCTG GATTTAGTAA AGAAAAGACG CTGATGATTG GAGATTCTCT	960

1301

AACCGCCGAC ATTCAAGGTG GCAATAATGC GGGGATTGAC ACTATCTGGT ATAATCCTCA	1020
TCACCTCGAA AATCACACAC AAGCCCAGCC GACTTACGAA GTCTATTCTT ACCAAGACTT	1080
GCTGGATTGT TTAGATAAAA ATATTCTTGA AAAGATCACA TTTTAAAGGA GACGAGCTAA	1140
TGACTACAAA AAAGCTAATA TTACTATTGA AGAGTACATT GAAATGTCTG AAGTTGATTT	1200
TAATGAAGCT GTTAATTATG AATTACATC TGACACTTGT CAATTAGCAA ATAGTATTTA	1260
TCAATCTCTT TTTAAGTTT TTGATAAGAA AAATTTCTCT GGCGATTAA TTTTACTTG	1320
GAAATCTCCA TCATTAGTCA AAGAAGGGA TTATATTGGG AGAAGGGATT CACAAGTAGA	1380
TAATCTTAGA GTAATAGGAA ATATATTTC GAATTATCTT ACTAATCGAA AATATAGCCT	1440
CAATATGAAT CGTAATGGCT GTATGGGAGA TTTTCCTCAT GACTTTTTTG ATATATACCT	1500
AGATCATGTA GCAAAATATG CCTACGAACA AAAAGTTAAT AATATTAAAG AGTATTATCC	1560
TTTAAAAGA GCGATTTTAC ACCAAGAGAA TGCATTGTAT TTTCGATTTT TTTCTAATTT	1620
TGACGACTTT TTAGAAAAA ATTATTTAAA GACTATATGG CAAGTTTCTA AAGAACTCC	1680

(2) INFORMATION FOR SEQ ID NO: 271:

- (1) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 598 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 271:

AGCTCGGTAC GTAGTATnTG TGGTGCATAA ATGAGTGAAA AGAGGATAGA GAGGATGAGG	60
CCGATAAGAA CACCGGTAGC TGCATCGTGA AATACTTGTT TTTTCATAGT TCTAATTTCT	120
CCTTGATGGT TTTTAGATAA CGGCGTGAAG AGTAGGTGAA GCTTTCGTTT TTCAAGAAAA	180
TTTCTACCAG ACCGTTTGGC GTGA <sub>g</sub> CTTGA GGTGAGAGAT GGAATCGATA TTGATGATTT	240
CTGATTGGGA AATTGGGATA AAATTGGTTG GCAAGAGTTT AAGAACCTGA TAGAGTCGCA	300
AATCAATGCT GTAGGTCTGA CTCGCGGTTT CTGCTAGAAC CTTCCGATTC TCGATATAGA	360
AGCGCTGAAT CTTGCCAATC TCAACTAGAT AGACCTGATC ATCGATTTTT CCTTGATTT	420
TTTCTCTTTG GTCCAGATTT TCTGCGAACT CGATGACTTT CTGGACTTTT TCGGTTTCTT	480
GAGGTGCTTG GACAATCAGC TTTTCCTCCT CGTAAGTCTC ACTAATCTGT AGTTCTACTT	540
TCATAGTTTT CTCTCCTTTT CAGTTATACA AGGTTGTGAT CACTTCCTGT ATATCCGG	598

(2) INFORMATION FOR SEQ ID NO: 272:

1302

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1099 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 272:

CCAGCAAATC AATAACTGCA ATTGCTATAA AATGGATTCT ATAGAGTTTT TTCATGACAA	60
GACCTCCCTC TTTTATCTAA CTTCAATTCTA CTCCTAAAAGA ATGGGAGTTA CAACTAAAAT	120
GATAAAAATA GCAGAAGGGA GATTCTCTTA AGTTGGCTAG TATTCTTTAT TTGAGTTTCC	180
TTCTATTATC TAACTTCTTC ATCATTCCAG ACAAATAAAG CTCCGATTGC ATTGAGGATA	240
TAAAAGATGT ATTTACCGAT ATTGGCGAAG TTTCCTTGAA TACCAGCTTT TGTCAGCTGA	300
ACGAAATGT AAATCAACCA AAAGCCCCAC TGAGTTGTTA GTTTTAATGC ATTCAAAGCA	360
TTGGCAATGA GGGACAGTGC AAAGGCAATA GTTGTACGT AGGCAAGGAG ATTCATCTTG	420
CCCCCATATC CGATATAGTT GGTCACAAAG GCAAAGAGGA AGGCGATGAT GGAAATGATG	480
ATGGCCGCCA ATTTTACCTG TTTTGGCTC ATTTGGTTGG GTCTGCCTTC TTGCGAAGCT	540
TCCCACTTCT TTATAGCAAA GGTATAAATG AGGAAGGTGA CGGGATAGGT AATGATGGCC	600
GCCTTATTTC CAAGGATATA ATCAATAGCA CCGGACAAAA TGGTATTAAC AATACCAAAG	660
TAATTTCCCC ATTTGCTTAA TTTCCCCGTG AAACGAGTGG ACAACATGGA AATCCCAACG	720
TTGGTTACGG AAATCAATCC AAAGGGTACA AGAGCTGTCC ATGATCCCCA GTCTACAAAT	780
TTATCGAGGT GTGAGTTGAG GTAACCAGAT GCAATCGCAA TCCCAACGAC CAAAGCAACC	840
CCGAAGAGGT CAACTATTT AGATGTAGCA AAAATTTTGA GTGATTTTTT CATAGGTTAA	900
ACTACCTTTC TTTTTTCAA ATATTCTCCC ACCAAATGAA AGTAAAATAA AATGATAGAA	960
ATAAAACCCT GAAAATAAAG GTTCTATAAT ATTTGTAGTG GGTAAATCCA CTATAGATAT	1020
TATGGAGCCT ATTTTATTGT AGAAAAAAG TCCCATATGA CCTATAATGA AAAGCGACAA	1080
AACAACTCAT TAGAAAGAT	1099

(2) INFORMATION FOR SEQ ID NO: 273:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2723 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 273:

1303

CTGGGATTCA CGTGAAAAGG AAGCCCAGAG AGTAGCCAGG TGTACTGCTA GAACAGTGAG	60
TGAAATTGAA TATTACCATA GAGAGTCAAC CCAGATAGCT CAGGCTTTAG TTGAAAATCA	120
AGCTCGTATC GAGGGAATCT ATAAATACTT TAGCCTTAGC ATGCCAGACT ATTTTACTG	180
GCAATTAGAG CGGAAAGCTT CGCCTTATAT ATCAGTCTCT CTGTATGAAA ATGTTGATGA	240
CCTCTATGTT CGAAATGATT TTGTAAGTGG GGTGGCCATT GCTTTTCAAG ATTACAAGGA	300
AGTCTATGTT TCTACTAAAG ACAAACGTAG GKKAGAAAAA ATCAGGGCTG AGGATTTCAA	360
ACCAGCAGGA AATAGTTTTG CCATTCCAGT GTCAGATCCA GTGTCAGATC AAGACTTAGG	420
AGTGATTTAC ATCTCCTTGG ATCCTGCTGT TTTATACCAT GCCATTGATA ATACTAGAGG	480
TCATACTCCG ATGGCAGTAA CAGTGACCTC ACCTTTTGAT ACGGAGATTT TTCATATGGG	540
TGAGACAGTT GATAAGGAGA GTGAAAATTG GCTAGTTGGC TTAAGTTCTC ATGGATATCA	600
GGTTCAGGTG GCAGTTCCTA AAACTTTGT TTTACAAGGA ACAGTGACTA GCTCTGCTTT	660
GATTGTGGGT TTGAGCCTTC TCTTTATGT CATCTTTAT CTGACTTTGA GGCAGACTTT	720
TGCTAATTAC CAAAAGCAGG TAGTGGATTT AGTAGAATCC ATTCAAGTCA TTGCTCAAGG	780
CGAAGAGGGG CGTCGGATTG ACATTCCGA GAAAGATCAG GAATTACTCC TAATCGCGGA	840
GACGACCAAT GATATGTTGG ATCGATTGGA AAAGAATATC CATGATATTT ACCAGTTAGA	900
GCTTAGTCAA AAAGATGCCA ATATGCGAGC CTGCGAGCG CAAATCAATC CTCATTTTAT	960
GTATAATACG CTGGAGTTCT TGCAGTGA TGCAATTATG CAGAGTCAAG ATGAGTTGGC	1020
AGATATCATT TATGAATTCA GTAGTCTCTT GCGTAACAAT ATTTCCGACG AAAGAGAGAC	1080
CCTCCTCAAA CAGGAATTAG AATTTGCGG TAAATACAGC TATCTCTGCA TGGTTCCGTA	1140
TCCCAAGTCC ATTGCCTATG GTTCAAGAT AGATCCAGAG TTAGAGAATA TGAAGATTCC	1200
CAAGTTTACC TTGCAACCGC TGGTAGAAAA CTATTTCCGG CATGGTGTG ACCACAGGCG	1260
GACAGATAAT GTGATTAGCA TCAAGGCTCT TAAACAGGAT GGTTTTGTGG AAATTTTGGT	1320
GGTCGATAAT GGTAGAGGAA TGTCGGCTGA AAAGTTGGCA AATATCCGAG AAAAATTAAG	1380
TCAGAGATAT TTTGAACACC AAGCCAGCTA CAGTGATCAA AGGCAGTCTA TCGGGATTGT	1440
CAATGTACAC GAGCGTTTGT TGCTCTATTT TGGAGACCGC TATGCCATTA CTATAGAGTC	1500
TGCAGAGCAA GCCGGTGTTC AGTATCGTAT TACAATTCAA GATGAGTAGA AAGGGAGAAA	1560
ATGTATAAAG TATTATTAGT AGATGATGAG TACATGGTGA CAGAAGGTCT GAAGCGTTTG	1620
ATTCCTTTG ATAAGTGGGA TATGGAGGTC GTCGCAACAG CCAGTCATGC CGATGAAGCT	1680
CTAGAATATG TTCAGGAAAA TCCTGTCGAT GTCATCATTT CCGATGTCAA TATGCCAGAC	1740

1304

AAAACAGGGC TTGATATGAT TCGGGAGATG AAAGAGATCT TACCAGATGC TGCCTATATC	1800
CTGCTCTCAG GTTATCAGGA GTTTGATTAT GTAAAAAGAG CAATGAACCT TAGTGTGGTG	1860
GACTATTTGG TCAAGCCTGT TGATAAGGTA GAGCTGGGAA ATCTGCTGGA GAAGATTGCA	1920
GGTCAGCTCG GCGAGAGAGG GAAGAAAAGT CAGACTCTTA GTCAAGAATT AGACGAGGCT	1980
GGATTTGTTA GTTATTTAGG GGATAAGGAG AATTGGTGGA TAGGTCTATC CAAGGAAAAA	2040
CAAGGTTTCT TCACCATTCC CTACTATGTC TTGGGTCAAG ACTGGCAGAT TTTCATTTCT	2100
GGCCACCCCC TAGATGGTTT AGTCGTTACA CCTTTTGAAG CTCCTTATCA AGAACACTTT	2160
GAACGCTGGA AGCTGAATGC TGAGAAAACC CTCTTTTACG GTTCTGTAAA TCTGCAGCAG	2220
TCTGAGAGTC TCTTTGCCA TTACGAACCG ATTTATAGGG TTATCATTC A GGGAAATCTC	2280
AATCAAATCG TAGAAGAGTT AAATCTCTTG GAGAAGTAG TTCTGAAAA TACACCTCGT	2340
GTTCGATT A CTAACAGCT TTTTATCCAG TTTGTCATGG ATGTTTCCA TTTATTTGAA	2400
CATCTCAAAG CTGATGATAT GACGGACATT GTCAAAACCA TTCATGCTAT TCAATCCTTC	2460
GATGAATTGG TTTCTTATAT CAAGGAACT CTGATCAGCT TTTTCGGTCA ATACCGTATG	2520
AATGAAAATG TGGTCAGTGT GCTGGAAGTC ATTGGTCGTG ATTACCAAAA AGAGCTTTCC	2580
CTCAAGGATA TCAGTAAGGC CCTCTTTATC AATCCTGTCT ATCTAGGGCA GTTGATTAA	2640
CGTGAAACCG ATTCGACCTT TGCAGAGTTA CTAACAAAC AACGTATTAA GGCTGCCCAG	2700
CAGCTCTTGC TTTCAACTAG TGA	2723

## (2) INFORMATION FOR SEQ ID NO: 274:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 836 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 274:

CCGCAGTTTT TTAAACCGT ATATAAGTAT AGCATAGTCA AAAAAAGAAT GCAAGATTTT	60
TGCAAACTTT TTAAAAATTT TTCGTAATTT TTCTTTTAAA GTTCTACTGT CAGGACTTGA	120
CCTTGCTTAA CAACCTGTTT TCCGGCGATA TAAACATCAT CTACATCACT AGATTTAACT	180
GCATAAACCA GGTGAGACAG CATATTTTCC TGAGGTTGGA GATGAATTTT CCCTTGTTGGT	240
TGAATGACCA GAAAATCTGC TTGCTTGCCG ACTTCCAGAC TTCCTATCTG ATTTTCCATT	300
CCAAGGACCT TAGCCCTTTC GATTGTCAGT ACCTTGAGAG CTGTTTCGAT TGGAAACTGG	360
CTGGCATCCC CACTTTTCAT CTTCTGAAGA AGAGCTGCAG TCCTTCCTTC CTCAAACATA	420



1305

TCTAGATTGT TATTGGAAGC AACCGAGTCA GTCGCAATTC CGACTGCTAC TCCCGCTTTT	480
TGGAGCTGGA TAATTGGAGC AATTCCTGAT GCCAGTTTGA GGTTACTGAT AGGATTGTGG	540
GCGATAGCnA CTTGAGAAGA TGCCAAGCGT TCAATTTCTC TCTCGTTTAA TTCGACCCCG	600
TGAGCAAATA CGGACGGATG ATCTAAATAA CCCAGTTCTT CAAGAAAAGC AAGGGGGCGT	660
TTGCCGTATC GTTTGAGGAT AATTCCTGAC TCCTCCTTGG TCTCCGCCAC ATGGACATGG	720
AGCGGAATAT TTAGCTCTTT TGCCATTTC AACTCGCTT CCAGCAAGTC TCTACTGCAG	780
CTATACGGAG AATGAGGTGC TACCATAACC TTGAAATTG GATTTTATA TTTTAA	836

(2) INFORMATION FOR SEQ ID NO: 275:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2335 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 275:

ATTTTATTC ACTTTTAGG TGGTCTGGG CTATTCTTAT ATAGCnTCAA GACCATGGGA	60
GACGGTTTAC AACAGCTGC TGGAGATCGC CTGGGTTTTT ACATTGACAA ATATACTAGT	120
AATCCTTTGT TTGGAGTTCT GGTTGGTATT GGGATGACTG CTCTAATCA GTCTAGTTCT	180
GGTGTAACAG TTATCACAGT CGGCCTGGTC AGTGCCGGTC TCTTAACCTT ACGTCAGGCT	240
ATCGGGATTG TCATGGGTGC TAATATTGGG ACAACTGTCA CATCCTTTCT CATCGGTTTT	300
AAATTAGGTA ACTATGCCCT ACCTATGCTC TTTATCGGTG CCGTCTGTCT TTTTTTACG	360
AAAAATCGGA CAGTCAATAA TATCGGACGC ATCCTCTTTG GTGTCGGTGG TATCTTTTTT	420
GCCCTCAATC TCATGAGCGG CGCAATGGCT CCACTCAAGG ATTTACAGGT CTTTAAGGAC	480
TATATGATTG AGCTAAGTAA GAATCCTGTT TTGGGTGTCT TTGTCCGTAC TGGCTTGACC	540
TTGCTAATTC AAGCTTCTTC GGCTACCATT GGGATTTTAC AAAACCTCTA CGCCGGCAAT	600
CTAATTGATC TACAGGGAGC TTTGCCAGTT CTATTGGTG ACAATATCGG GACAACCATT	660
ACAGCCATCA TTGCCTCTTT AGGGGCTAAT ATTGCAGCTA AACGGGTAGC AGGAGCTCAT	720
GTTCCTTCA ACGTTATCGG AACAGTTGTC TGCCTTATTT TTCTAGTTCC TTTTACTGTC	780
CTGATTCATT GGTTTGAAGC TACGCTAAAT CTAGCACCGG AAATGACCAT CGCCTTTGCT	840
CACGGAACCT TTAATATTAC CAACACCATT GTCCAATTC CATTTATCGG AGCTCTGGCT	900
TACTTTGTAA CCAAGATTAT TCCTGGAGAG GACGAGGTG TCAAATACGA ACCCTTATAT	960

1306

CTTGATGAAC ATTTTCATCAA ACAGGCCCCA TCTATCGCTC TAGGAAATGC TAAGAAAGAG	1020
CTCTTGCACT TAGGAACTA CGCTGCTAAA GCCTTTGACC TTTCCTATAA GTACATCATT	1080
GACTTGATG AAAAAGTTGC TGAAAAAGGG CATAAAACCG AAGAAGCAAT TAACACCATC	1140
GATGAGCAAT TAACACGTTA TCTCATTGCC CTTTCAAGCG AAGCTCTCAG CAAAAAGAA	1200
AGTGAAGTGC TTACCAATAT CCTTGATTCC TCCCGTGATT TGGAACGGAT TGGAGACCAC	1260
ACGGAGGCTC TACTCAATCT GACTGACTAT CTTCAACGGA AAAATGTTGA ATTTTCTGAT	1320
GCCGCCTTGA AAGAATTAGA GGAAGTTTAC CGCCAACTA GTGACTTTAT CAAAGATGCT	1380
CTGGATAGTG TGGAAAACAA TGATATTGAA AAAGCACGCA GTCTTGTA ACGTCATGAA	1440
GCAATCAATA AGATAGAACG TGTTCTCAGA AAAACCCACA TCAAACGCCT CAACAAAGGC	1500
GAATGTTCAA CACAAGCTGG GGTCAACTTT ATCGACATCA TCTCACACTA CACTCGTGA	1560
TCAGACCACG CTATGAACCT TGCTGAAAAG GTTTTTGCAG AACAAATCTA AGAACCAAGA	1620
AGCTATCCAT CATAATTGGA TGGCTTTTTA CTTTTTCTA AGCAAGACTA GGATGAATGA	1680
AACTGAAAGA GTATTCTGCA GATATATAGT CCCCAATTAT TCACCCCAA TCTAAAACC	1740
ATCCAGAATC CTTGCCTTAG CTTAGATCCT GGATGGTTT TTTTTCACC CAATGGGTGT	1800
TTTTTACTAG AAAAAAAGA GTTTCCCTT TATGGTATAA GTGTAGAAA AAACACAAA	1860
AGAAAGGAAA CTCACATGAA CAGTTTACCA AATCATCACT TCCAAAACAA GTCTTTTAC	1920
CAACTATCTT TCGATGGAGG TCATTTAACC CAGTATGGTG GTCTTATCTT TTTTCAGGAA	1980
CTTTTTTCCC AGTTGAACT AAAAGAGCGG ATTTCTAAGT ATTTAGTAAC GAATGACCAA	2040
CGCCGCTACT GTCGTTATTC GGATTGAGT ATCCTTGTC AGTTCCTCTT TCAACTGTTA	2100
ACAGGTTATG GAACGGACTA TGCTTGTA GAATTGTCAG CTGATGCCTA CTTTCCAAAA	2160
TTGTTGGAAG GAGGGCAGCT TGCTTCACAG CCAACCTTAT CCCGTTTTCT TTCCAGAAT	2220
GACGAGGAAA CAGTCCATAG TTTGCGATGC CTCAACCTTG AATgGkCGAA TTCTTTTAC	2280
AGTTTCACCA GCTAAACCAA CTCATTGTAG ATATCGATTC TACCCATTTC ACAAC	2335

(2) INFORMATION FOR SEQ ID NO: 276:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 752 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 276:

CGGATTCACCT GTTGTGACT AATCAATAAC ACAGTAGAAA ATCTCACAGC AGTCTATTAG	60
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1107

TTGCTTTTCA TACTAGGCAA GTGACTGAGG CTTGTACTTG GGTACAGCAA GGGAGCTTAA	120
GGCCGTAGAA GAGAAAAATA GTAGACTGAA AACCCGCAAG ACTTCATCAT TTCGAGAAGT	180
GACGTGGGAG ATGAAAATCG ATTGAACCAC TTACAAGGAG AATAGAAAAT GGCTAAAAAA	240
AGCAAACAAC TTCGTGCTGC TCTTGAGAAA ATCGACAGCA CAAAAGCATA CAGTGTAGAA	300
GAAGCTGTAG CACTTGCAAA AGAAACTAAC TTTGCAAAAT TTGATGCAAC TGTAGAAGTT	360
GCTTACAAC TGAACATCGA CGTTAAAAAA GCTGACCAAC AAATCCGTGG AGCAATGGTA	420
TTGCCAAACG GTACTGGTAA AACTTCACGT GTTCTTGT TTTCGCACGTGG TGCAAAAGCT	480
GAAGAAGCAA AAGCTGCTGG TGCAGACTTT GTTGGTGAAG ATGACCTTGT TGCTAAAATC	540
AACGACGGTT GGTGGACTT CGACGTAGtT ATCGCTACAC CTGATATGAT GGCTCTTGT	600
GGACGTCTTG GACGTGCCT TGGACCACGT AACTTGATGC CAAACCCTAA AACTGGTACT	660
GTAACAATGG ATGTTGGCAA AGCGGTTGAA GAGTCTAAAG GTGGTAAAAT CACTTACCGT	720
GCTGACCGTG CAGGTAACGT TCAAGCAATC AT	752

(2) INFORMATION FOR SEQ ID NO: 277:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2643 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 277:

GTCAACATTG ATTTCAAGGC TGTGTGCTTT CTATCTCCCC TTTTTCATAA TGTATAATAA	60
AATGAAATAA TAACAGGACG AATTGATCGG GACAGTCAAA TCGATTCTA ACAATGTTTT	120
AGAAGTAGAG GTGTACTATT CTAGTTTCAA TCTACTATAT TTTCGTACAG GTGCTTCAAC	180
CATTTGAACG ATTTCAAATC CTTCTTTTGG GTAAAGATTC TGAGCTCTTT GATTGCTCTC	240
GAAGACATTT AGAGAAATAC TGTCTATATC TCTATTTTCA AATGCTAAAC TAACAAATTT	300
CCTTAAAGCC TTGCTACCTA AGCCTTGCTC CTGTTTCTGG GGGTTGATAA AAAATCTCCC	360
GATATGAAGA TTGCTGTCTT CTAGCCTGAT TTTCTGGATA AATCCACAA ACTCTGTTC	420
ATCAAAGATT GAAAAGACTC CTTCCAAGGC TTGAAGTGTG AGTAGAAAAG GAATCCTTGG	480
TCCCATCCAT TGTCTTGAA AGGATTTGCC TAGGGAGTTG GACCACTGGC ATACAAATTG	540
AGCGTTTTCT GTGCTCACCT TTTCTTCAA ACGAATTGTC ATCTTTTCT CACCACCTTA	600
TCTATGTTTC TCCATTATAC TATTTCTCCC ATTTTTTACG AATAGATAAG TATGATTGAT	660

1308

TTTTATTTT TTCTCGTCGG GAGCATTCTA GCTTCCTTTC TTGGTTTGGT CATTGACCGT	720
TTTCCAGAGC AATCCATTAT CAGTTCAGCC AGTCACTGCG ATTCCTGTCA GACTCCCTTG	780
CGTCCCTTAG ATTTGATTCC GATTCTCTCA CAGGTCTTCA ATCGCTTTCC CTGTCGCTAC	840
TGCAAAGTTC GCTATCCTGT CTGGTATGCC CTCTTTGAAT TAAGCTTAGG ACTCCTCTTT	900
CTGCTTTACT CTTGGGGATG GCTCTCCTTG GGGCAAGTCG TCCTAATCAC CGCTGGTTTG	960
ACCTTGGGTA TCTACGACTT TCACCATCAG GAATATCCCT TACTGGTCTG GATGACTTTC	1020
CAGCTAATCC TAATAGCTTC CTCTGGCTGG AATCTGGTCA TGGTCTCCTT CCTCATACTT	1080
GGAATTTTGG CTCATTTTAT CGATATCCGC ATGGGTGCAG GGGATTTTCT CTTTTAGCT	1140
TCTTGTGCTC TCGTCTTTAG CGTAACGGAG TTAAGTATCT TGATTCAATT CGCTTCTGCG	1200
ACGGGTATCC TGGCCTTTCT CCTGCAAAAG AAAAAGGAAA GACTTCCTTT CGTGCCTTTC	1260
CTCTTACTTG CTACTTGTTC GATTATTTT GGTAAGCTAC TGCTTGTCTG ATAAAATCCA	1320
ATTTCTGCCA TATATCCTTC ATGAAATTAT TTCACAGTTA AATTATAAAT TATTTCTTTT	1380
GTACAAAGGG ATGATGTTAT CAAATCGATC TGTCTCTCTA TCTTCTTGAT ACTGATCAAA	1440
AAATTTCAAT TCGACTGAAA ATATTTCTGCT TATAAACTGT AAACGAATAC TTTGTTTAGA	1500
CATTATAGTC GCTAGACTGA CTAGATGATT ACTCAAAACG ACGTCCAGAA TACTCTTTAC	1560
TTTGCTTGGT TTTTAAACAA AAATTTGATC ATCCAAGGGT TCAATCATTT TGTAACCTTT	1620
TTGCGCAATT TGACGATAAA AGTAAGAATG TTGCTTTGGA GTCAATAATC CTAACCTAAA	1680
AGCTCGATAC TCTAAAGCCT GTATCGAAAC ATTCAAATCC GACTTCAATA AAATATAACT	1740
ATCAGGATTG CTGACACGCT TGCCAACCTT CTCTTCAAAT TTGACTAAAA ACTCTTCTTT	1800
TGGCAATAAA AAACATGATG CAAAATAATT TGCTTCTTGC TCCAAACGAT CGCCATCTTC	1860
ATTCATATCT TTATATTTAT GTAAAAGAAT ATGTCCTAGC TCATGAGCTA AGTCAAAATT	1920
TCGACGTACA GATGATTTAT TCGTTCCTAA CACAATATAA GGTCTTCCCA ATTTTGACCA	1980
TGCGCTATAA GCATCAGCTT GGCCATTAAT TAATCGTTCC ACGATATAGA TGCCTGAACG	2040
TTCTAATTTA TAAAGCAAAT CATGATTATC TTTTGAAATA CCTAATTTTT CCCTGGCATA	2100
AAGAGCCAAT TCCTCAATGG ATTCTCCCTT ATGATAAGAT TCACTCACTA CATTACTTAG	2160
GTCAATGAAT ATAATATTAG GTATAATTAC AAACTTTTCA AAATAATCAA TCAAACTATC	2220
TACCTTATGT AAATACATAG TTTGAATATC TATTGTTTTT CGTGTGCTA GGTCTGCATT	2280
TCTAAAGGCA ATTACAGAAG AATCAAATCG AATGCTCTCT TCTTCTGTT CAAAATAAGT	2340
TAAATCAACA TGAAATTGGT TGGCCAAATG CATTTTGGTT GATAATTTAG GTTTCGTTTC	2400
GTTGGACTCA AACTGCCAAA TGGCTTGTTT CGTTAAATTA ATTCTCTGAG CTAATTCTGC	2460

1109

TCTACTTAAA CCATTTAACA GCCGTAATTC TTTCAATACC CGACCATTAA ACATTTACAT 2520  
 ACTCCTTACT ACTTTTGACC TTCTTGTTTT TCTATTCTTG GAATAATTC AAAATCTTCT 2580  
 GTTTCGATA ATTCTGAAAA ATTAGGAATA TCTTGATATT TAGCTTCTTC GAAATGGTAC 2640  
 GGG 2643

(2) INFORMATION FOR SEQ ID NO: 278:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 582 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 278:

TGACCACTGG CAAAATGGCT ATCCAAATGC AGATGTTATT ATCGATGATA TCATCTCAGG 60  
 GCAAGCCTAC GTAGCCTTGG AAGAGGGAGA ACTGCTAGCC TATGCTGCTG TGACCAAGAG 120  
 TCCAGAGGAG GCCTATGAAG CTATTTATGA GGGAAACTGG CAAGCTGGAG AGTCAGAGTA 180  
 TCTAGTCTTT CACCGTATTG CTGTGGCAGC AGATGTGCAG GGAAaAGGAG TTGCTCAAAC 240  
 CTTCTTAGAG GGCTTGATTG AAGGTTTTGA TTATCTTGAT TTTCGCTCAG ATACGCATGC 300  
 TGAAAACAAG GTTATGCAAC ATATTTTGA AAAACTTGGT TTAAACAAG TCGGTAAGAT 360  
 GCCAGTAGAT GGCGAACGCT TGGCCTATCA AAAATTAAAG AAATAATGCA AAAGAAGTAT 420  
 GTAAAAATCC TCTACTCCTC ACCAATTGGT ATTCTATCAC TTGTAGCTGA TGACCATTAT 480  
 TTGTATGGAA TTTGGGTTCA GGAGCAGAAG CATTTTGAGA GGGGACTAGG AGATGAAACG 540  
 ATAGAAGAAG TTGTWAGTCA TCCTATTTTA GACCCAGTTA TT 582

(2) INFORMATION FOR SEQ ID NO: 279:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 554 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 279:

CCCAAGCTAC TAAGAGACTA AAAGTTGCTA GAGAAGCAAG AGAAAGTGTG AATCTTTTAA 60  
 ATTTCTATGAT GAATTTCTCT TCTGCTACCA ATTTAGAGAA ATTTTCTCTA ACCAGCAATT 120  
 CCCCTAGTAT AACAAGTTCA AAAAATGGAG TCAATTTATC TGCTCACGGT CCAGCAGGTA 180

1310

GCCCCGTACT TCTGAGATAA AATAGAGAGA CCCTGTAACG AACAGCAAGT CTTGAGCGTC	240
TGCCCTTTCT TCAAAATCGC TGATAAATTC TCGGTAAGAA GAACTATAT CGTAACCTGT	300
CACATCCCTT TCGTCCAAAG CCCCCTGATA GTCAAAGCCG GTCACCTTGA GTTCCACCTG	360
AGGCAATTTT TCAGTCAGAT AACCCAACAT CCCTTGATAA TCCTTACGTT TCAAGGATCC	420
AAAGAGGATT TGAGGTCGAT AGCCTTCCTG CTCTTTTCTT TTGATAAACT CAGCCAAGCG	480
AGTCAAGGCA GGGAGGTTAT GAGCACCATC CAAATAAATC TGTGGGCGAA TACGCTCCAA	540
GCGAsCAGCC CAAT	554

(2) INFORMATION FOR SEQ ID NO: 280:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 766 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 280:

CCGGTTTTTC AAATGAATTT CTTGGTTGTG GCTAAAAAAT ATGCTACACT ATCAATATGA	60
AAATTTTAAT CCCAACAGCA AAAGAAATGA ACACAGACTT CCCAAGTATC GAGGCAATTC	120
CTTTAAACC AGAAAGTCAG GCCGTGCTTG ATGCCTTGGC TCTCTATTCT GCCAGTCAAT	180
TGGAGAGTTT CTACAAGGTA TCAGCTGAGA AAGCGCGGGA AGAATTTCAA AATATCCAAG	240
CTTTGAAAAG GCAAACTGCT CAACACTATC CAGCCTTGAA ACTTTTTGAT GGGCTTATGT	300
ACCGCAACAT TAAGAGAGAT AAGCTGACCG AGGCGGAACA AGATTATCTT GAAAATCATG	360
TTTTCATTAC CTCGGCTTTG TACGGTGTG TTCCAGTCTT GTCACCCATG GCTCCTCACC	420
GTTTGGATTT TTTGATGAAA TTAAGATCG CTGGTAAGAC TTTGAAGAGC CATTGGAAGG	480
CAGCCTATGA TGAACTCTG AAGAAGGAAG AAGTGATTTT CTCTCTCTTG TCATCAGAGT	540
TTGAGACTGT ATTTTCTAAG GAAATCAGAG CAAAGATGGT GACCTTCAAA TTCATGGAGG	600
ATAGAGGCGG TCAGCTGAAG ATTCACTCAA CTATCTCCAA GAAAGCGCGC GGGGCCTTTC	660
TAACAGCTTT AATAGAAAAT CAAGTACAAA CTGTGGGGGg AGCACGTCGC TTGAACTTTG	720
CTGGATTTGT TTACCGAGAA GATTTGTCAC AACCACAGGG GGATGG	766

(2) INFORMATION FOR SEQ ID NO: 281:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 901 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

1311

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 281:

CCGGCCACGG TTCCATCCAA CTTACAGGT GTGCACCTGA TTGTGTATGT AATTGTCAC	60
AACGGTAGAA TTTCACCTAT CCCTCCTATC TGCTCGCAGT ACCCGCAGAC TTTCTGAAAG	120
AAGAAGATAA CCTACTTATC CGTTGCTATG ATTATACTAA AGTTTCTACT TTTTGC AAA	180
TAGATTTTTA AATTTTGGC TAATTGTCTG AATCAGGGTC GGAAGTTTGA CGACCTGTG	240
ATTGCCTAGT TTTTCGGCTG CAATTTTGAG AATGGCACCT GAGTCTTTG AAGCAAAGAG	300
GAATTTTCCT TTGTCTGTAA AGACTTCGAA GTGGCGGCTG ATTTTGGCTC CAGTGACATT	360
GGCTCCAATC TGATTGATAT GGCTCCAAGG AATCTGGATA AATTGTTTGA CATTGACATC	420
TGGGTAAAAT TCCAAAGCCT GATCTCCGAC AAGGAATTTT CCAACTTTCC CAGCGATAGA	480
GAGGTAGGAA GTGCCTGTCT TACTGAGGAG TACTGTTTTG TTAAGTGATT GGGCCATGCT	540
TAGTCTTCCT TACTTTCTCC AAAAAAGGCA TTGTAGAGGG CTTTAATTGC TGCTTTCTCT	600
TGGTCTTTAT TGACAACAAA CATAATAGAA ACTTCACTAG AACCTTGAGA CATCATCTGG	660
ATGTTGATTT TGTTTTCAGA TAGAGCGCGT GTCGCAGTAG CAGTCACTCC GATATGGCTC	720
TTCATTTTTT CACCAACAAT CATAATGATA GAAAGGTCGT GTTCGATTTC TGCATGATCT	780
ACTTTAGCCT TTTGAACCAA CTGACGCAGG ATTTCTTCTT CTTGATGGG AGTTAGTTGG	840
CGAGAACGGA GAATGATAGA AAGAWCGTCG ATACCTGTTG GCATATGTTT CCAACCGATC	900
T	901

## (2) INFORMATION FOR SEQ ID NO: 282:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1765 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 282:

CCCTGTTACG TGGATAATAG GGTAAGACTG CTCAGGATTT CCTAACAAAT CCACCGCTTG	60
CTGCATTCTGA CCCAAACCTG ATCGAAAATT CAAACCAATC CGACTATGGA GCCATTCTTC	120
TACTTCAAAC ATACACATCT CCTTGACAAA AGTCCAATCA ATTATCGCAT TAAAGTATGG	180
TTACTAATAA AAACAAGGCC AGGATTTTTCG TCCCGACCTC TTACCTGGTT AGCTAATAAC	240
TAGCTACTAT GAATGTGAAT ATGGGCTAAA AACATCCACT GGACGTTCCA ACTCTTCCCC	300

1312

ATTTCTGGGA GTTGGGGTAA AAATGTTTAC TGGACGTTCC AACTCTTCCC CATTTCTGGG	360
AGTTGGGCTG ATACAGTCTC CCAGACTGTA TCACTCCTCC ATAAAGCTGT TGAAGACTTC	420
TTCAATCATG TTCCATTCTG CTTCTGAGTC TTCTGGGATT GGTGCAATT CGCCTTCTGT	480
TCCATCTTCG TTTTCGATGA ATGAGTAAGC TTGGATTCA ACTTGTCCTG CTTCTGCTTC	540
TTCTGCGTTA ACTGGTACTA GAAGAACATA GTTTTTACCA AATTCTTCTT TTCCATCAAT	600
TGTCAAAAGG ATTTCAAACA AGGTTTCATT TCCTTGCTCA TCTACTAGTG TGATTAGTTC	660
ACGTTCTTCG TGGTCGTGGT TATGATCGTG TGACATAGCC TCGCCTTTAT ATTAAAAATT	720
TCTATCTAAA TAATTTTGTA AAATCAGCTG AGCTGCTAAC TTATCAATGA CTTTCTTGCG	780
CTTATTGCGA CTGATATCTG CTTGTTCAAT CAACATGCGC TCAGCAGCCA CTGTTGTCAA	840
GCGTTCATCC TGATAGTCTA CTGGTAAACC AAAAACTCT TCTAGCTTTG CTCCTGAGCT	900
TGACTAGCTT CTACGCGCGG TCCACTTGTA TTGTTTATGT TTTTAGGCAA GCCCACTACA	960
AATCGTTCCA CCTTGTAAGT ATCAACCAAT TCCTTAACGC GGTCAAAACC AAATTGGCCT	1020
TGTTCTTCAT TTATCTGGAT GATTTCGAAG CCTTGAGCTG TAAAACCAAG CGGATCGCTA	1080
ATCGCCACCC CTACCGTTTT TGAACCGACG TCCAATCCCA TAATTCTCAT AGGTTATAGA	1140
TCGACTCCTT GTCCTTTGAG GTAGTAGCGA ACCAATTCCT CAACGATTTT ATCAGCTCA	1200
TACTTACGGA TTTGATTTTC TGCAATTATTA TAACGAGGAA CGTAGGCAGG GTCTCCACTC	1260
AATACGTAAC CTACGATTTC GTTAATTGGG TTGTAACCCT TATCGTTCAA CGAAGCATAA	1320
ACATCTGTCA AAGTTTCGCT AATTTCTTTT TTATTGGAAT CGTCCAATTT AAAACGTAAT	1380
GTTTCTTCAG TAAATCCCAT TCTAACACCC TCTTTCCTTA GAATAGTACC ATTATAGCAT	1440
AATTCCTTAC CTTCTACAAT TCAGGCAGTC TATTTATTG GATTTTCTAT TGTTCGTGCG	1500
CGCCATTTGC CAATCTATCT GAAATATATT TGCTTGGTTC ATTTTTCAAA AGATTTTCCA	1560
AACCAATATT CTTTCAATGT TCCAATGGG AAGCCTTCTT GACATCCAGA ACTTGAAAAT	1620
CAAACTAGT CGTTGTTTGA AGTTCCTGTC CGCTCAATAG TTTTGTTCAT AGTTTGAAAC	1680
CTGCCAATTT ACGAGCTTCA ATGATAGACT TATCCTTCTC CTCCGCTTCA AGAAGAGCTT	1740
TTTGAGTTTC CTCCACTCCA TGTG	1765

(2) INFORMATION FOR SEQ ID NO: 283:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1346 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear



1313

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 283:

CTTATCCATT CACTTTCTTG TCTGTTATTC TATAAATCTT ACTCCTAAGT ATACCACATT	60
TGCCCCCTAGA TGTGAACGAG AGAAACGCTC TAGACATTGC CAAGAAGGAA AAAAAAGGGT	120
ACAATGTAAC AAAATCAAGG GAGGTCTGGA ATGAAGAAAC AAAGCAAGTA CAAAGAGGTC	180
GTTTCCTATC TGAAAAATGG TATCGAGTCT GGACGATTTC CGACGGGTAG TCGCCTGCCT	240
TCTATCCGTC AACTGAGCCT TGACTTTTAC TGCAGCAAGG ACACCATTCA ACGAGCCCTG	300
CTGGAATTAC GGCACGAACA ATACCTCTAT GCCAAGCCTC AGAGTGGCTA CTATGTATTA	360
GAACAAGGGC AACATCAAGA CCTAGAAATC GAGGTTACCG ACGAACATGC CAGTGCCTAT	420
GACGATTTC GACTCTGTGT CAATGAAACC TTGATTGGCC GAGAAAACTA CCTCTTCAAC	480
TACTATGACA ATCAAGAAGG ATTAGAAGAC CTAAGACAGT CCATTCACAA ACTCCTCTTT	540
GAGCAAGCTC TCTACTGCAA GGCTAACCA CTAGTACTGA CTTCTGGAAC CCAACAAGCC	600
TTGTTTATCC TCTCTCAAAT ATCCTTTCTT AGACAAGCCA AGGAAATCTT GGTGGAACAG	660
CCAACCTACC ATCGGATGAA TCGCCTCTTG ATTGCACAGG GGCTGGACTA TCAAACGATT	720
GAACGAGGCA TTGATGGGAT TGACTTGGAG GAGCTGGAAG GCCACTTCAA AACAGGAAAA	780
ATTAAGTTTT TCTACACCAT TCCCCGATTT CACTATCCCC TGGGACATTC CTATTCTGAG	840
CAAGACAAAC GATCTATTCT TAACTTAGCT GCCAAGTATG ATGTCTATAT CGTAGAGGAC	900
GATTATCTGG GTGATTGGA CTCCAAGAAG GGCCAAACCT TCCACTATCT TGATACAGAG	960
GAGCGTGTC TTTATATCAA GTCCTTCTCG ACCAGCCTTT TTCCTGCCCT TCGTATTACA	1020
GCACTCATT TCCTAAATGC TATCAAAGAA GCATTTGTGG CCTACAAAAA TATCCTAGAC	1080
TACGACAGCA ACCTCATTAT GCAAAGGCC CTGTCACTCT ATATTGACAG TCAATTGTTT	1140
GAAAAAATC GTTGGCTCG CTTGACCAAT CATGAATCTT ACCAAAAACA AATCGAGGAA	1200
AGGATACTA AAACACCTTG TCCCCTTCTT CATTATTCCC TACACGATGG YTTATTGCTA	1260
GACCTGAGAC AGTATCCTAA AATCGCCAGT CTCAAACACA GTCAACTGGG CTTGGACTTC	1320
TTTGAAGAGG CCTATTTAAG CACCTG	1346

## (2) INFORMATION FOR SEQ ID NO: 284:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 900 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

1314

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 284:

CTATATTCAG AATATGCCAA AAATTCGGAA TGGTATAAAT TTGCGGAGGG TTCATTGAC	60
ATATTTAGAA AACTCCCCCA AAGAATTAAT TTTAAGAAAG ATTTTCTAG AATTTGGCC	120
CCCTTTATTA TTAATTTGCT TAAATTAATC AATAATTATC TAGAGAATAA AGAATACGAG	180
TGGATTGACA AGAATGGAAA TATTTTTC TCTCTAGTAT TTTATTTAGA AGATTTAATC	240
TATCCTTGGA TTGTAAACC TTGGTTTGA GAGATAAAT CATTCGCTGA AAAAGGTTA	300
CTTGAAGGGG AATCGGAGCA GCAACGGTAC AAATATTTTA TAACATTGTT TGACAAGGAA	360
GAGAATATAT TAAATTTTAA TAACAAATAT CCCGTTTAC TGAGGCAAAT ATCGGAGTCT	420
TGTCTTCGGT TCTATACTTA TTTTATAGAA ATTTTATCAA ATTTAGAAAA TGATTTAGT	480
GTGCTAGAAG AAGAATTAGG GCTAAGGGGG AAATTAAATG ATATAAAAT TGGAAAGGGT	540
GATACACACA GCCAAGGAAA AACTGTTTTG ATACTCTTCT TTGATGACGC GAAAATTGTT	600
TACAAGCCTA AAAATTTAAT AATCAATAAC TCACTAAATA CTATTGCTGA GTATATCCGA	660
AAGGTTGATG AAAAAATTAG GATAAGAATA CCTCGAACTA TTGCTTATTC GGATCACAGC	720
TATGAAGAAT TTATTGATTA TCTACCTCTA GAGCAAAAGA AAAATTTACC TGAATATTAT	780
TATAATTTTG GTGTGCTTTT AGCATTTATA TATTTATTTA ATGGGAGTGA TATACATTTT	840
GAAAATTTAA TTTCTATGG AGATATGCCT GTAATAATAG ACTTTGAAAC AATGTTACGG	900

(2) INFORMATION FOR SEQ ID NO: 285:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 862 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 285:

TTATTTAGCA GAGGCAGTTT TAAATGTGAA GGATTGGTC AGTCAAACAG TTTTTATCA	60
GCAGATTATT GGTTTAGAAA TCCTATCTCA AACGGATACA GAGGTCGTTT TGGGACTTGG	120
AGGAAAAGCC TTGGTACACT TGATTCAAGC ACAAGAGGCT GGAGAAGTAA GGAACATTA	180
TGGTCTTTAC CATCTGGCTA TTCTTTTGCC GACACGAAAG GCTTTGGCGG ATGTCTTGAA	240
GCACCTGACG GATTACAGA TTCCTCTTGT TGGCGGTGCA GATCACGTT ACAGTGAGGC	300
CCTTTACTTA GAGGACTTGG AGGGAAATGG CATTGAACTC TATCGAGATA AGCCAGTTTC	360
CACATGGGAT ATTCGAGAAG ATGGACGTAT TATCGGGGTG ACTGAAGTCC TTGCGGCTCA	420
GGATATCTAT GAGTTGGGGG AAAGAGTAGA GCCTTTTATC CTAGCAGAGG GTACGAGAAT	480

1315

GGGGCATATT CATCTTCTG TCAAGGATAG TCGAAAGTCC AGACAGTTTT ATCAAACGGT 540  
 GTTAGGGCTC GAGGATAAAT TCACTGTGCC TAGTGCTAGT TGGATCGCAG CTGGGGACTA 600  
 CCATCATCAT TTAGCAGTCA ACGAATGGGG AGGAAAAGGT CTGGATCCGC GTAAACAAGT 660  
 CCTACCAGGT TTAGCCTACT ATGTCATCGA AGTCGCACAT AAAGAAGAAC TGTTAACGAT 720  
 TGCCCAACGA GCACAAGAAG TTGACGCACC AATCAAATGG ATGACATCGA TCCAATTGGA 780  
 AATCACAGAC TCAGATGGCA TCGTGACCCG TATTCGTTTA GCTAGATAGA TGGTATGTGA 840  
 TGAAGGTAGA GCATCAATTG TA 862

(2) INFORMATION FOR SEQ ID NO: 286:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 650 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 286:

TCGTTTACAA GATCGCTAAA ATGCATCTCA TGATCGCGAC CACGAATTCC AAGATAGCAC 60  
 GCGCTACCTC AATCATAGAT AGTTCACTTT TTTCTTGCCC AGCAAATACT TCTAATTCCA 120  
 AAGCGTTTCT CCTCATTTAT ACTACTATCG CCAGAGCGAA CAGACTCTGA CCTCATTTTA 180  
 TCATTACTC TTTATTTTAC GATAATTTTG CGGAATAGTC AAAGGTTAAG GGGGAGAAAG 240  
 TGGCAGGATT AGACTAATTC CAATATAAAA CTCATTCCTT TTTCTGTTGC TCCATTTTCC 300  
 ACAAATCCAA GCGACTTGAA ACACCTCCTA GAAGCATGAT TGTAGGTGTA GATTTTCTTG 360  
 ACTCTCAATT CTTTCCATCC TTTTACTCGA GCCAATTCAA TCAAAGCACT TAGAATCTTT 420  
 TTTCCAAGTC CTCGATGTTG GTAAGCGGAA TTCCAATCA CAATGGGGAG ATTATCCTGA 480  
 GATAGTGTA TATCCCAAT TGGAAACCAT TCTCCCTTCT CTTTGACTTC AATCCAAAAA 540  
 AGCTCACCAT GCCGATyCa ATAGGAATAC ATGGCTTCCA AGGTCGCTtG ACTGTAAGGA 600  
 AGCTTCACCC CATCTACGAG GtAAcCAAGT TCACATCCGT GATACCAAGC 650

(2) INFORMATION FOR SEQ ID NO: 287:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 1119 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

1316

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 287:

GATAGCAATC CGCTTCAGAA ACTTCTCGCT TACCTCTAAC TCCGATCGCT AGTTTGGGAG	60
AAGATACTTC CATTCTCATA CTATCTGTTG GCTTTCAGG CTGTAAAAAC AACTTTTCTC	120
TTGCTACTTC CTGAAAATCT GAATCTTGCA GTTCTTTGCT TTCAAAATAG TCCTGTACTC	180
GCTCCACATC AAAATTCCCA GCTAAAGACA GAGACATGTT TACAGGTTTG TAAAACTTTG	240
TAAAAATTTT TGCAAAATTA GTTAGATTGA TTTGGGAAAT GGACTCCTCA CTTCCAAC TA	300
TATCAGTTGC TAAAGGTGTA CCAGGATACA AATTCGCTAA AGTTGAAAAG AATAAACACG	360
AATCTGGATC ATCTTGGTAC ATTTCTCGTT CTGCTGAAT AATATCCTGC TCTGTCAGAA	420
TGGAAGCTTC AGTAAAGTGT GCTGATGTTA CCAATTCATC AAGTAAATCT AATTTTCTA	480
AAAAATAATC CGTTGCTGAA AAAAGATAGT TTGTTTTTGT AAAGCTTGTA AAGGCATTAC	540
TATCTGCACC TAGACTCGTA AAAGCCGACA TCAAACTACT AGAATCTTCT CTCTCAAATA	600
ATTTATGTTT AAGAAAATGA GCAATTCCTC CAGGATATTG TTTTACATCT CCGTCAACTT	660
CTGTGACAAA CGTATCTACC GAACCAAACT GTACAGTGAC ACTCCCGTAA ACCTCTTTAA	720
ATTCCTTTTT AGGCAAAAGA GCAACTGTCA ATCCGTTGGC CAAACGAGTT CGATAAACCA	780
TTTCTTTTAC AGCTGGATAG TATTTTTCTT CAAAAACAAC CTTTGTCAAT CTATTCCTTC	840
CATAAAGTAA ATCGCTTGTA GTTTCACATT ATTAGCTACT CTACAAATAG CATCTTTGTC	900
AATTTGTTCA AGCTTTGCAA TCCAACTTT AAAGTCTGCT GAAGATTTTC CAAATAAGGC	960
ATTTTGATAA GCACGTTCAA TCAATGAAGA ATGATTATCT TGAGAAAGTA ACAACGACCA	1020
ACGAATCATT TCCTTGGTCT GATTTAAC TC AAACCTCTGTA AAAAAACCTT TTTTAAATC	1080
AAGCCGTTGA TTATTCATCA ATTTACGAGC CTGGTTACG	1119

(2) INFORMATION FOR SEQ ID NO: 288:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 540 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 288:

ACGCCCTCGC GGGGACATGA CGAATTCCTC GTTCATCAGC AAGGCCGCCG AGGAGTGGGG	60
GGTGCCGTCC AAGTCAAAAG CGGCCCCACA TCGATTCACT TCCCCGACGA ACAGCCCTTT	120
CCCCCAGCGT TCCTGGCTTT GCAACCGTTT CACAACAGCC TCGTAAAGTA GGCCGGACAA	180
GGCAGACGGA CTCCAAAGGA GTTCTTCCAT CTGCAAGTGC GCCTGCGTTA TGTGATCCCC	240

1317

GTCTTTTGCA TGTGTGTGGC ATGAATGCTG TTCCCAATCC CACTCCAGAA CATTCTCCTC	300
AAAAGTGCGC AACGTCGCCC TGAATGAATC CTGCCCTTGTG GTCGTGACCA TTCCTATGAA	360
GGGTGCGAGA GGATTTTCCC CGAGTGCAAG CGCATCCTCC GGCTCAAATC GGGTGCAATTT	420
CACAGTCCCG CTCAACGCTA GCGCGATCCC TTTTGGCAT GGTGACTCAA GCGTCCTTTC	480
AAACAAAAGC TCCTCATCCG CTCCAACCGG CCCGACGTAG ACGCGTAGAC CGAAGTCGTC	540

## (2) INFORMATION FOR SEQ ID NO: 289:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1949 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 289:

AAAGAATTCG ACCAATTCAA GGTGAGGCA TCGCAAACCTA TGGACTGTTC CCCCGTCAGT	60
TCTGGACAGA AAACGGGATA AGGTTGGCTG TGAAGCAAGC TGCCCTCCTA CCAACAATTT	120
TGGAAAGTAG GCATCAGCTG ACAATTCTTT ACAAGCATAG TCCGTTCCAT AACCTGTTAA	180
CAGTTGAAAG AGGAACTGGA CAAGGATATC TGAATCCGAA TAACGACAGT AGCGGCGTTG	240
GTCATTCGTT ACTAAATACT TAGAAATCCG CTCTTTTAGT TTCAACTGGG AAAAAAGTTC	300
CTGAAAAAAG ATAAGACCAC CATACTGGGT TAAATGACCT CCATCGAAAG ATAGTTGGTA	360
AAAAGACTTG TTTTGGAGT GATGATTGG TAACTGTTC ATGTGAGTTT CCTTCTTTT	420
TGTGTTTTTT TCTACACTTA TACCATAAAG GGGAACTCT TTTTGTCTA GTAAAAACA	480
CCCATTGGGT GAAAAAAGAA ACCATCCAGG ATCTAAGCTA AGGCAAGGAT TCTGGATGGT	540
TTTGTAGATT GGGGTGAATA ATTGGGGTTT TACAATATCA ACTCCCATGA TAGTCATGAG	600
ATGACTCTTC ACGAATTGAC GTGATGACTG TCCTTCCTTT TGCATAATTA CCTCCGAAAC	660
ACAAAAAAG GGGTAGACAA TCTAGTGTCT ACCCCCGAAA GTTTATTAAA AAAAAATCC	720
TGCCAAAGAA TTTTGGCAG GAAACCAAT CAATTTATCA GTTCTATCA ATCGCTTATC	780
GCTCTCAAAG ACTGGTAAAT AGGGATTCCG CAATCAAATT GCGATACTCT ATTATTTAAG	840
AGTAACTGAA GCTCCAGCTT CTTCGAATTT AGCTTTGATT TCTTCAGCTT CTGCAGTTGC	900
AACGCCTTCT TTAACAAGTG CTGGTGACC GTCAACAAGT TCTTTAGCTT CTTTAAGACC	960
AAGACCAGTG ATTTACAGTA CAACTTGAT AACGCCAACT TTTTGTGCG CTGCAGATGT	1020
CAATTCAACG TCGAATGAAT CTTTAGCAGC ACCAGCATCA GCTGCATCAG CTGCAGCAAC	1080

1318

AGCTACAGGA GCAGCTGCAG TTACACCAA	TTCTTCTTCG ATAGCTTTTA CAAGGTCGTT	1140
CAATTCAAGG ATTGAAGCTT CTTTAATTT	AGCAATAATG TTTTCAATGT TCAATGCCAT	1200
TGTTATTTCC TCCAAATAAG TTTTAAATTT	TATAATAGTT TTTTTCGTAG CTAGkTACG	1260
CTGTGTAGCT TAAGATTAAG CCGCGTCTTC	TTTGCTTTCT GCAACCGCTT TGA CTGCAAG	1320
AGCAACGTTG CGCACTGGCG CTTGAAGTAC	AGAAAGGAGC ATAGAAAGAA GTCCTTCGCG	1380
GTTTGGAAGA GTTGCAAGTG CAAGAATCTC	TTCTTTAGAT GCGACAGCGC CTTTCGATTGC	1440
ACCACCTTTA ATTTCAAGTG CTTTCAGCGTT	TTTAGAAAAG TCGTTCAAGA TTTTCGCTGG	1500
TGCGATAACA TCTTCATTAG AAAATGCTAC	TGCAGATGGT CCAACAAATA CAGATGCAAG	1560
ATCTTCAAGA CCAGCTTTTT CAGCTGCACG	ACGCAAGATT GAGTTTTTAA TAACTTTATA	1620
CTCAACTTCG CTTCACGAA GCTCAGCAGC	AAGAACTGTA TCTTGCTCAA CTGTCAAACC	1680
ACGAGCGTCT ACAACGACGA TAGATGCAGC	AGCTTTCATT TTTTCAGCTA LACGTCAACT	1740
AGTTCCGCTT TTTTAGCAAT AATTGCTTCA	CTCATTAGTG TGTTACCTC CGTAATTATT	1800
TTGCTTGGGG AATTTTTCAA AAAGAAAAAC	GCGCCCAATC CTAGACACGA AAGTACAATA	1860
CGCTTCTTTT TACATGATAC GTTTTGTCTC	CGGTAGGATA TTTATGAGTC GAGCTCCCCT	1920
ACTGTCTTAG GCAGTTTTTT TAGATACGG		1949

## (2) INFORMATION FOR SEQ ID NO: 290:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1023 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 290:

GGACTGTTTG ATCTTATACA GTAGCTGCTT	GATCCAAGCT TTCACCGATA GCGGCTAGGC	60
GCTCGATAAC TTCAGCTTGT GTCAATTCAT	TTTTTGAAAC ATAGCGGTTA CGTGGGTG.A	120
CACGGCACTC GTGTGAGCAT CCACGAAGGT	ACTTGTCTTC ATTTTCTTCT GATGTCAAGA	180
TACGACGGTT ACAGAAATGGA TTTCCACAGT	TGACATAACG TTCACATGGT GTTCCATCAA	240
ACCAGTCTTT CCTACGATA GTTGGGTGTA	CATGGTTGAC ATCAACGGCA ATACGCTCGT	300
CAAAGACGTA CATTTTCCCA TCCCAAAGCT	CACCTTGAAC TTCTGGGTCT TTACCGTAAG	360
TTGCGATTCC TCCGTGCAAT TGGCCGACAT	CTTTGTAGCC TTCACGGACC ATCCAGCCTG	420
AGAATTTCTC ACAGCGAACG CCACCTGTAC	AGTAAACCAC GACACGCTTG TCCATGAATT	480
TTTCCTTGTT ATCACGGACC CATTGTGGTA	ACTCACGGAA GTTGCGAATA TCTGGGCGAA	540

1319

TAGCTCCACG GAAATGTCCT AGGTCGTACT CATAATCGTT ACGTGTGTCA AGGACAACGG	600
TATCTTTATC AAGAAGCGCT TCTTTGAACT CTTTGGAGA CAAGTAAGCA CCTGTTGTTT	660
CAAGTGGGTT GATGTCATTG TCAAAGTCGT TGTCTTCCAA ACCAAGGTGG ACAATTTCTT	720
TCTTGTAGCG AACAAACATC TTCTTGAAGG CTGTTTCATT TTCTTCGTCA ATCTTGAACC	780
AGAGTTCTTC CATTCTGGA AGGCTGTGAA CGTAgtCCAT GTATTTTGA GTTGTTCAT	840
AGTCACCTGA AACTGTTCCG TTAATTCCT CGTCAGCGAC TAGGATACGG CCTTTAAGGn	900
CGATTGATTT ACAGAAAGCC AAGTGGTCTG CAGCAAATTG CTCTGCATTT TCAATTGGAG	960
TATAAAGGTA GTAAAGTAAG ACACGAATAT CTTTgkCaw AAGATTGTA TCTCTTATC	1020
TAT	1023

(2) INFORMATION FOR SEQ ID NO: 291:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 3831 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 291:

ACTATGAACA AGACCCAGAA AAAGTAGCCT TATTCTTAA GAATTTTAAT AGTTTAAAGC	60
ACCTAGCACC TGTTTAGATT GACGAAACAG GATTCGATAC TTATTTTAT CGAGAATATG	120
GTCGTCATT AAAAGGTCAA TTAATAAGAG GCAAAGTATC TGGAAGAAGA TATCAGAGGA	180
TTTCTTTGGT TGCAGGTCTA ACAAATGGTG AATTAATCGC TCCAATGACT TACGAAGAGA	240
CGATGACGAG CGACTTTTTT GAAGCTTGGT TTCAGAATTT TCTCTTACCA ACATTAAACA	300
CACCATCGGT TATTATTATG GATAATGTAA GATTCATAG AATGGGGAAG CTAGAACTTT	360
TATGCCAAGA GTTTGGGCAT AAACCTTTAC CTCTTCTCC CTACTCGCCT GAGTACAATC	420
CTATTGAGAA AACATGGGCT CATATCAAAA AGCACCTCAA AAAGGTATTA CCAAGTTGCA	480
ATACCTTTTA CGAGGCTTTT TTATCCTGCT CTTGTTTCAA TTGACTATAT TAGAGGCGAG	540
ACATTTTTCG GTTCTTTGTC AACTGTAGTG GGTGAAGAA AGCGAAGATC TAGAAAGGAC	600
AAATTCGTC CTTTCTTTT TGAAGTTTC AAAGTTCTTA AAACCAAAGG CATTGTGCTT	660
GATAAGTTG ATGAGATTAT TGGTGGCTTC CAGTTTGGCG TTGGAATAAG GTAATTGAAG	720
GGCGTTGACG ATTTTCTCTT TATCTTTGAG GAAGGTTTA AACAAAGTCT GAAACAGAGG	780
TGAAAAAGCA AGAGCTGATA GAGATTATAG TGGTGTTTAA AGTCTTCGGA ATAGCTCAAA	840

1320  
AGTTTATCTA GAATTTCCTT ATTAGTCAAG TGCATACGAA AAGTAGGGCG ATAAAATCGT 900  
TTATCACTCA GTTCTGACT ATCTTGTTGA ATGAGCTTCC AGTAGCGCTT GATAGCCTTG 960  
TATTCATGGG ATTTCCGATG ATGGCTTGTG TTCTGCTCTC AAGAACAGTT ATGATATTGA 1020  
GTTTATCAAA GTCCTGAGCA ATAAAGCTCA TCTCCATCTC CCGATTGAAA CAGTCACTCC 1080  
CCGGACTGTT TCAACsTCCT AGGACATAAT CTCAGGAAGA ESEGAAAAAT CATGCTCAAA 1140  
GTGAAAATCA TTGTTCTTGC GAATGACAGT TGAAGTTGAA ATAGACAACCT GATGATCAAT 1200  
GTCGGTCATA GAAGTCTTTT TAATTAGCTT CTGAGCAATC TTTTGGTTGA TGATACAAGG 1260  
AATTTGATGA TTCTTCTTGA CGATAGAAGT CTCAGCGAGC TCCATTTTTG AGCAATGATA 1320  
GCACTTAAAA CGGCCTTTTC TAAGAAGAAT TCTAGTTTGA ATTTTTTTAT ACTAGAAAAAT 1380  
CAGAACCATA ATACCTATAT AAAAATATTA TAGTCTAAT AGGATTTACC CAAAAGTTTT 1440  
AAGGCGGTCT TTTTAGAACT TTAATTGTTT GAAATTTAGG TAGCAAATTT GTTCTATTT 1500  
TGTCAACTTT TCCTATTTTT ATCTTGTTGA GGCTGGTATT TTAACAATTC AGGAATTGAT 1560  
AGTGAATGTG TAAAATTTTT TGTTAGAATA AGTTTATAAA AAAGAAAAGG AGTATTGAT 1620  
TATGTTACAA AAAATTTATG AGCAGATGGC TAATTTCTAT GATAGTATTG AAGAAGAGTA 1680  
TGGTCCTACA TTTGGTGATA ATTTTGACTG GGAACATGTT CATTTTAAAT TTTTAATTTA 1740  
TTATTTAGTG AGATATGGCA TTGGTTGTCG TAAGGATTTT ATTGTTTACC ATTATCGTGT 1800  
TGCTTATCGT TTGTATCTTG AAAAATTGGT AATGAATCGG GGTTTTATTT CTGTGTGAGG 1860  
TAATTTTAGT AAATTTCCGA ACTAATTTAC TCTTTTATGG AAAGATGATA GTAAATAGCT 1920  
AGTAATTTTT CTAAATCATT TTTTAATAGT TGGAAATAGC AAATCTTTCT ATTGTTTCTT 1980  
CTTGATAAAA AGGCGATTTT TTATTATAAT AAATTGTAAG ATATAATTGC AGGTGAGAGT 2040  
CCTGCCATGT ATGTGAGAAA GGAAGAGCCT GATGGCTCAG ACAAGATTAT GACTTCAGTT 2100  
GTTGTTGTAG GTACCCAATG GGGTGATGAA GGTAAAGGGA AGATTACAGA CTTCTTTTCA 2160  
GCGAATGCAG AAGTGATTGC ACGTTACCAA GGTGGTGATA ATGCTGGTCA CACGATTGTG 2220  
ATTGACGGTA AGAAATTTAA GTTGCACTTG ATTCCATCTG GGATTTTCTT CCCTGAAAAA 2280  
ATATCTGTCA TTGGGAATGG TATGGTTGTA AATCCTAAAT CTCTTGATAA AGAGTTGAGC 2340  
TATCTTCATG AGGAAGGTGT AACAACTGAT AACTTGCGTA TTTCTGATCG TGCGCATGTT 2400  
ATTTTGCCTT ATCATATCGA GTTGATCGC TTGCAAGAAG AAGCTAAGGG CGACAATAAG 2460  
ATTGGTACGA CAATTAAGGG AATTGGTCCA GCTTATATGG ACAAGGCTGC TCGTGTGGA 2520  
ATTCGTATTG CAGATCTTTT AGATAAAGAT ATTTTCCGTG AGCGTTAGA ACCTAACCTT 2580  
GCTGAAAAGA ATCGTCTTTT TGAAAAATTG TATGACAGTA AAGCGATTGT TTTGATGAT 2640



1321

ATTTTGAAG AATATTACGA ATATGGTCAA CAAATCAAGA AATACGTGAT AGATACATCT	2700
GTTATCTTGA ATGATGCGCT TGATAATGGC AAACGTGTGC TTTTGAAGG TGCACAAGGT	2760
GTTATGCTAG ATATCGACCA AGGTACTTAT CCATTGTGTA CGTCATCAAA CCCTGTAGCT	2820
GGTGGTGTGA CAATTGGTTC TGGTGTCCGT CCAAGCAAGA TTGACAAGGT TGTAGGTGTA	2880
TGTAAAGCTT ATACGAGTCG TGTAGGAGAT GGTCTTTCC CAACTGAGTT GTTTGATGAA	2940
GTGGGAGAAC GTATCCGTGA AGTGGGTCAT GAATATGGTA CAACAACGG TCGTCCACGT	3000
CGTGTAGGTT GGTGTGACTC AGTTGTGATG CGTCATAGCC GTCGTGTTTC TGGTATTACT	3060
AACCTTTCTT TGAACCTCTAT TGATGTTTG AGCGGTTTG ATACTGTGAA AATCTGTGTG	3120
GCCTATGATC TTGACGGTCA ACGTATTGAC TACTATCCAG CTAGTCTTGA ACAATTGAAA	3180
CGTTGCAAGC CTATCTATGA AGAGTTGCCA GGTGGTCAG AAGATATTAC CGGAGTTCGC	3240
AATTTGGAAG ATCTTCCTGA GAATGCGCGT AACTATGTTT GTCGTGTGAG TGAATGGTT	3300
GGCGTTCGTA TTTCTACTTT CTCAGTAGGT CCTGGTCGTG AACAAACAAA TATTTAGAA	3360
AGTGTGTTGGT CCTAAGAGAT TTTTAAGATT TGTTTAAGAT AGGTCGGGTA TACTATAGAC	3420
GGTTACAAGA AGACCTCCTA ACTTGTGTA ACAAATATCC TAACTTTTC TTTTTCATAA	3480
TAATCTCCCT ATAGAGTCAC CGCATTCCGT GGCTTTTTTT GTGTTGGGAT TCATGATATA	3540
ATAATAAAAT CGATAAGTAG GAAAAGAGAA AAGAGATGTA TTATACGCTT GAAGAAAAAG	3600
AAGTCTTTAT GAGGGAGGCT TTGAGAGAGG CTGAGATTGC TCTTGAACAC GATGAAATTC	3660
CAATTGGTTG TGTGATTGTC AAAGATGGGG AAATCATGCG TCGTGGGCAT AATGCGCGTG	3720
AGGAATTACA GCGAGCGGTT ATGCATGCGG AAATTATGGC TATAGAGGAT GCGAACTTGA	3780
GTGAGGAGAG TGCGCTTGCT GGATTGCACA CTTTTTGTGA CCATTGAACC G	3831

(2) INFORMATION FOR SEQ ID NO: 292:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1441 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 292:

CCGCTGTTC AACCGCAACA TACCATAGTC CGTACGGGAT TCGAACCCGT GTTACCGCCG	60
TGAAAAGGCG GATGACTTAA CCCCTTGACC AACGGACCTG AGTTGTTATT TTCAACTCTT	120
ACTATTATAC AGTCTTTTCA AACTTTGTCA ACTACTTTTT CTAATTTTGT TTTATTTTTT	180

1322

CAACTTATAG TAAAAAAGC CAGAATTATA CTGACTCTTC TATCGCTCAT TAACTTAGA	240
AGCACGTTCT TTCCCCACC AATAAGGGAT TAGTTCTGCG ACTTTAACTG TTTTCTTAT	300
ATTATAGTCC ATCATGAATT CTGCATCTTT ATTTTCAGCA TTAAGCTCTA AAAGGAATTC	360
TCTACAAGCA CCGCAAGGCA TGGCTGAACT TCCACCATAA GGTGGTTTGT CTCGAAAGGC	420
TAATACTTTC TTAACCTTAG TTGTCCTGA AAATTGGTAC ATATTGAAGA GGGCCGCCCG	480
TTCTGCGCAG AGATGGA AAA CACCACAGGT TCCCTCCATA CAGAATCCTG TAAATATTTG	540
TCCATCTCCT GCTTCTACTG CAGCTACAAC ATGATTGGCA TAAACAAAGT CTGATACTTC	600
ATGTGGATTG TATAGTTTCT GTGCTTCTTC GTACATCTTT TCCCAGATGT CCATTATTGT	660
ATCCTCTTTA TTTAGAGATT TCTTTTAGCA TGTTTTCGAT ATGCTGAATT GATTTTTTAC	720
GTCCAAGCAA GAAAATTGTA TCTGGTAATT CTGGCCCATG CATTTGCGCT GAAACTGCCA	780
TACGAATAGG CATGAAAAGA TTTTCCCTT TAATACCTGT TTCTTTTGG ACTGCTTAA	840
TTTGTGGGAA GATATTTTCT GTCACAAATT CATCATCTGT CATCGCTTCA AGTTTGTCTT	900
TGAATGCTTC AAGAACTGTT GGAAGTGTTC CACCCGTCAT GACTTCGCGC TCTGCTCTG	960
TCAATTCTGG GAAATCTGAG AAGAAAAGAT CTGTCAATGG GATAATCTCA TCTACTGATT	1020
TCAATTGTGG TTTATAGAGC TCAACTAATT TTTGAGCCTT GTCAGTCAAA CGGCCTGCTT	1080
CCTCTAAGAA TGGTTTGGC ATTTCAAAGA TGGTTTCAAG GTCTGCATTC TTGATATAAT	1140
CATTGCTCAT CCAGTCTAGT TTTTCTGAT CAAAGGCTGC TGGTGACTTG CTGAGGCGGT	1200
TTTCATCAAA AAGTTTAATG AATTCTTCAC GAGAGAAAAT CTCATCCCCA CCACCTGGGT	1260
TCCAACCAAG AAGAGCAATA AAGTTAAAGA CTGCTTCTGG AAGGTAACCT TTCTTTCGGT	1320
AATCTTCGAT AAATTGAAGT GTATTAGTAT CACGTTTAGA TAACTTCTTA CCAGTTTCAG	1380
AGTTGATAAT CAAGTGTCAT GTGACCGAAC TCTGGAGCTT CCTCAACCTA AGAGCGGGTA	1440
T	1441

## (2) INFORMATION FOR SEQ ID NO: 293:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 4398 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 293:

CGGCTTATGT AGTGGCAATC TTTCTACGTA AGCGAAACGA GGGGAGATTA GAGGCGCTAG	60
AAGAAAAAAA AGAAGAACTA TACAATCTTC CAGTAAATGA TGAAGTAGAA GCTGTAAAAA	120

1323

ATATGCACTT GATTGGACAA AGTCAAGTGG CTTTCCGTGA ATGGAATCAA AAATGGGTCG	180
ATTTATCTCT CAACTCTTTT GCCGATATTG AAAATAATCT CTTTGAAGCA GAAGGCTATA	240
ACCATTTCATT TCGTTTTCTC AAGGCCAGTC ATCAAATTGA CCAAATTGAG AGTCAAATTA	300
CTTTGATTGA AGAAGATATT GCGGCAATTC GCAATGCTTT GGCAGACTTA GAGAAGCAAG	360
AATCTAAAAA TAGTGGTCGT GTTCTTCATG CTTTGGATTT ATTTGAGGAA CTTCAGCATA	420
GAGTTGCTGA AAATTCAGAA CAGTATGGTC AAGCCTTGGA TGAAATTGAA AAACAATTAG	480
AAAATATCCA ATCTGAATTT TCACAATTTG TAACCTTGAA TTCATCGGGT GACCCTGTGG	540
AAGCCGCAGT GATTTTGGAT AATACAGAAA ATCACATTTT GGCCTTAAGT CATATTGTGG	600
ATCGTGTTCC AGCCTTGGTT ACGACGCTTT CTACAGAATT GCCAGATCAA TTACAGGATT	660
TGGAAGCCGG TTATCGTAAA CTAATTGATG CTAATTATCA TTTTGTGAA ACGGATATTG	720
AAGCGCGTTT CCACCTTGCTT TATGAAGCAT TCAAGAAAAA CCAAGAGAAT ATTCGTCACT	780
TGGAATTGGA TAATGCCGAA TATGAGAATG GACAGGCACA AGAGGAAATC AATGCCTTGT	840
ATGATATTTT TACTCGAGAA ATTGCTGCTC AGAAAGTAGT GGAAATCTA CTTGCAACTC	900
TTCCAACCTA TCTTCAACAT ATGAAAGAGA ATAATACTTT ATTGGGAGAA GATATTGCAC	960
GTTTGAACAA GACCTATTTA CTTCTGAGA CAGCTGCAAG CCATGTTTCTG CGTATTTCAGA	1020
CAGAATTAGA GAGTTTGTAG GCAGCTATTG TTGAGGTAAC TTCAAATCAA GAAGAACCAA	1080
CCCAAGCTTA TTCAGTTCTT GAAGAAAATC TTGAGGATTT ACAAACCTCAA CTAAGAGATA	1140
TTGAAGATGA GCAAATTTCA GTTAGTGAGC GCCTGACACA AATTGAGAAA GATGATATTA	1200
ATGCACGTCA AAAGGCCAAT GTTTATGTCA ATCGTCTCCA TACTATCAAG CGATACATGG	1260
AAAAACGCAA TCTGCCAGGT ATTCCACAAA CTTTCTTGAA GTTATTCTTT ACGGCAAGCA	1320
ATAATACCGA GGATTTAATG GTTGAGTTAG AACAAAAAT GATTAACATT GAATCTGTTA	1380
CCCGAGTTCT TGAAATTGCA ACGAATGATA TGGAAGCTTT AGAAACGGAA ACTTATAATA	1440
TTGTACAATA TGCAACTTTG ACAGAGCAAC TCTTGCAATA TTCTAACCGC TATCGCTCAT	1500
TTGATGAACG CATTCAAGAA GCATTTAACG AAGCTTTAGA TATTTTGTAA AAAGAATTTG	1560
ATTATCACGC TTCATTTGAC AAGATTTCTC AAGCATTGGA AGTGGCAGAG CTTGGTGTA	1620
CCAATCGCTT TGTTACCTCA TATGAGAAAA CACGTGAAAC GATTCGTTTT TAATAAAGA	1680
AAAAGATTTT ATTGTGTGAG GAGCAGAATC AAATCTTTT CTATAGTTGT GGGGAGATTT	1740
ACTTCATTTT CTCCTGAGAT TGAGTTTTTG CCCAGCCGAT TTATCCACTA CCTCAAAACA	1800
GTGTTTTATA CTCTCGAAA ATCTTTTCAA ATCAGTCAG CGTCGCCTTA CCGTACTCAA	1860

1324

GTACAGCCTG AGGCTAGCTT CTTAGTTTGC TTTTGGATTT TCATTTAGTA TTAAAGTGAT	1920
TTCCGCCAGTC TTATCTGCAG CTTCAAATCT GTACTTTGAG TAACTTGGTA ACCGTCCAAT	1980
AACGAAGTCT ATTGAAAAAT CTCCAGACTA GAGAACTCAC GGATAGTTCC TAATCTGGAG	2040
ATTTCTTATT TGCACTTTTC TTGTACAACT TTAGTCCACG GTAAATAGAC CTCTAAAACC	2100
TCITTGTTTA CGAGAGTTTC CTCGTTTGGG AGACATTCTA GAAGATAGGA TAGATATTTT	2160
TCGCTATTTA TACTAGACTA AAATCAAAAA GCATTATATA ATAGTGATAT GAAATCAACT	2220
AAAGAAGAAA TCCAAACCAT CAAAACACTT TTAAGAACT CTCGTACAGC TAAATATCAT	2280
AAACGCCTTC AAATCGTTCT ATAGTAAAT GAAATAAGAA CAGTACAAAT CGATCAGGAC	2340
AGTCAAATTG ATTTCTAACA ATGTTTTAGA AGTAGAGGTG TACTATTCTA GTTCAATCT	2400
ATTATATTTT GTCTGATGGG CAAATCTTAT AAAGAGATTA TAGAACTTTT ATAGTAGATT	2460
GAAATAAGAT GTGAACAACT CTATCAGGAA AGTCAAATTA ATTTATAGAA ATATTTTAGC	2520
AGCCAAGGTG TACTGTTATA GATTCAATAC ACTATAGACT GTAATCAAAC AACGATTGG	2580
CGAAATGTAA AAAAATATGA GGAGTTCGGA CTCGACTCTC TCCTTCAAGA AACACGTGGT	2640
GGTCGTAACC ATGCATATAT GACAGTTGAG GAAAAGAAAG TCTTCTTGC CCGCCATTTG	2700
AAGGCTGCAG AGGCAGGAGA ATTTGTTACA ATTGATGCCT TATTTCAAGC TTATAAAAAG	2760
GAGTTAGGTC GTTCCTACAC ACGTGATGCC TTCTATCAAC TGTTGAAGTG CCATGGTTGG	2820
CGAAATATTA TGCCACGTCC AGAACATCCT AAGAAAGCAG ACGCTCAAAC CATTTGTCGG	2880
TCTAAAAATA AAATCTCAAT TCAAGAAGAA AAGAAAGCGC TTTAAAACCA GTAGACGTTT	2940
TCGTAAGGTT CGCTTGATGT ACCAAGATGA GGCTGGTTTC GGTAGAATCA GTAACTGGG	3000
ATCTTGTTGG GCTCCAATAG GAGTAGGTCC ACATATCCAT AGTCACTATA TACGAGAATT	3060
TCGCTATTGT TATGGAGCTG TTGATGCCCA TACAGGCGAA TCATTTTCT TAATAGCTGG	3120
TAGATGTAAT ACTGAGTGA TGAACGCCTT TTTAGAAGAG CTTTCAACAG CTTATCCAGA	3180
TGATTATCTT TTAATCGTTA TGGACAATGC TATATGGCAT AAATCAAGTA CCTTAAAGAT	3240
TCCGACTAAT ATTGGTTTTA CCTTTATTCC TCCATACACA CCAGAGATGA ACCCCATTGA	3300
ACAAGTGTGG AAAGAGATTC GTAAACGTGG ATTTAAGAAT AAAGCCTTTC AAACCTTTGA	3360
AGATGTCATG AATCAACTCC AAGATGTTAT ACAAGGATTG GAGAAGGAGG TGATAAAGTC	3420
CATCGTTAAT CGGAGATGGA CTAGAATGCT TTTGAAAAC AGATGAGTAT AAAAAGAAAG	3480
TCCTCATTTC AATAGAAATC ACGACTTTCT GATGGATTTA TAGTAAATG AAATAAGAAC	3540
AGGACAAATC GATCAGGACA GTCAAATCGA TTTCTAACAA TGTTTATAGAA GCAGAGGTGT	3600
ACTATTCTAG TTTCAATCTA CTATATTTT GGAGTGATAG AAAAGCCCTT CATAAGCTAG	3660

1325

TCTACTTGTT CAGGTGCGAG AGCTTTGACA TCTTTTTCTG TACTTAGCCA AGTCAGTTTT	3720
CCGTTCTCAA AGCGTTTATA TAGTAGCCAA AATCCTTGAC CATCCCAGTA AAGGGCTTTA	3780
AAGCGGTCTT TACGTCCACC ACAAAGAGA AAGACTTGAC CGGAGAAAGA ATCCAATTCA	3840
AAGTGGGTTT TAACTACATA GGCTAATGAG TCTATTCCT GCCTCATATC TGTCTTGCCA	3900
CAAACAAGGT GAACTTGACC TAAATCACTT AGTTGAATTA TCATAGTACA ATACCTTTCC	3960
TCCGATAATT ATTTTTTATC TAGTATACTG GAAGTTGGGG AATTAGGATA GATACCTTGT	4020
TATGACGCGC TTACGTAAC TGTAACTAGC TGCCTAGTTT GATCTTTGCT TCTTCATTGA	4080
TTAGCAGTAG ATTTCAAAAT GATAAAAACG CATAGTATCA GGTATTGAAA TGTACTGCCC	4140
CAAAAGTTAG ACAGAAAAA TCTAACTTTT GGGGTGTTTT TGTTATGAAA TTAAGTTATG	4200
ATGATAAAGT TCAGATCTAT GAACTTAGAA AACAAGGATA TAGCTTAGAG AAGCTTTCAA	4260
ATAAATTTGG GATAAATAAT TCTAATCTTA GGTATATGAT TAAATTGATT GATCGTTACG	4320
GAATAGAGTT CGTCAAAAAA GGAAAAATC GTTACTATTT TCCTGATTTA AAACAAGAAA	4380
TGATTAATAA AGTCTTAC	4398

(2) INFORMATION FOR SEQ ID NO: 294:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 718 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 294:

AGATTTTATAG ACTTTGTCTT TAATCGTTTC TTTTAGGGA TGATTGCGAC ACCTTCTTTT	60
GGCTATTAAC TTTAGCAGGA GGGATTATCC TTGGTCTAGC GCCGGCTAGT GCCACCTTGA	120
TGAGCTTATA TGCAGAACAT GGTATAGCT TTCGGGAATA CAGTTTGAAG GAGGCTTGGT	180
CTCTTTACAA GCAAAATTTT GTCTCAAGCA ACCTGATTTT CTATAGCTTT TTAGGTGTGG	240
GTCTAGTTT GACCTATGGT TTGTATCTCT TGGTGCAATT GCCTCATCAG ACCATTGTTC	300
ATTGATTGC GACCCTTTGG AATGTCCTAG TAGTTGCCCT GATCTTTTGG GCTTATACAG	360
TATCTTTAAA ATTACAAGTT TATTTGCCT TGTCTATCG AAATAGTCTC AAATTATCCT	420
TGATTGGCAT CTTTATGAGT CTAGCAGCTG TGGCTAAGGT TCTCCTTGGG ACTGTGCTAC	480
TTGTAGCAAT TGGTTATTAT ATGCTGCCC TGCTATTTT TGTAGGAATT GGGATGTGGC	540
ATTTCTTTAT CAGTGATATG TTGGAACCTG TCTATGAAAT CATCCATGAA AAATTGGCGT	600

1326

CAAAATAGAA TGAAGCAGTT TTGGCTACAT ACGCTTCTAA GAACCTATAG TTCAGTGATG 660  
 ATCATTATCA TTGCGAGTTT TGCAATCTTA CTCTCTTACG CTGTCTGGGA TTCACGTG 718

(2) INFORMATION FOR SEQ ID NO: 295:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 718 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 295:

TCCGTACCAA AATTCTGGAT TTATACTAGC AAAGATCCAA GAGCAAATTA TTAAACAGAT 60  
 TTAGGTCTAG TTTCCCTGA ATCATTAAAA GAATTTGAGA GTGAAGATAG TTTTGCAAAG 120  
 GAAATTTCTG CAGAAGAAGC AAATAAGATA AATGATGCTG ATGTAATCAT AACTTATGGT 180  
 GATGATAAAA CTCTTGAAGC TTTACAAAAA GATCCTCTTT TAGGTAAAT AAATGCAATT 240  
 AAAAATGGTG CCGTTGCTGT AATTCCAGAT AATACACCGT TAGCAGCCTC ATGCACTCCA 300  
 ACACCACTTT CAATAAACTA TACTATTGAA GAATACCTAA ATCTTTTAGG AAATGCATGC 360  
 AAAAATGCGA AATAAAAAAC AAATAAACCT AGGCATAATT TTTATAATCT GCCTAGGTCT 420  
 TCTTATTACA ATATTTTGT CATTAAAGCT TGGAACAAAA GAAATTAATA TCAGAGATTT 480  
 TTTAGCAGCT TTTGGAATGG GTAATACAAA TGATGATTTT ATTAAATCAA TTATATATAA 540  
 TGAATACCT AGAACTATTT TTGCAATTTT AGCAGGTTCT AGTCTTGCCA TAAGCGGTGT 600  
 ATTGATGCAA TCAGTTACTA GAAACCCAAT AGCTGATCCA GGTATACTCG GTATAAACAC 660  
 AGGAGCAAGT CTTAGTGTAG TAATTGGTCC TTCCTTTTAG GGAATTCATC AAGCATAA 718

(2) INFORMATION FOR SEQ ID NO: 296:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 1436 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 296:

GAACTAATCA TTTTACAGG ATGAGATTTA CAGCAGAGAG TTTGAAGGCT TTATCAAAGG 60  
 TTTTCTTGG CATAATGACT TTTCTCGTT TCCACTTAAT TTTGTGTCTA CTTTATTATA 120  
 CCAAGTCCAC SCTTAAGTTA GATAATAAAT CTAACCTAAG GAAGCTAGAA GGATGAGAAT 180  
 CCAGGTGGTC AAGAGTCCCA AACTTAAGCT GATGGGGACA CCCAGAATAA TTGCTTTTTT 240

1327

GAAGGCAAGG CCACGTTCTT CTATATTGGG AAGTGAGAGT TGAATGAGAG AACCAGCTGA	300
TGAAAAGGGT GAGATATTAG TAGATAGAGC GCCAATAACG GTGGCTGTTG TGACTAAGTG	360
AATATCAATC TGAGGATTTT GAGCACTGAT GATAGCAATG ATGGGAAAGA GGGCTGGAGC	420
TACAACGGAT AGGGTGGAA TAAAGAGTGA CATCACTCCG GCTATCACAC AAAAGAACAG	480
AGGTAACCAG AAATGAGGAA TGGTTGTTGT CATGAGGTGC CCTATCAGTG TGACTAAACC	540
TGACTTGACC GCTAGAGACA TTAGTAAGCT CATGCCGCAG AGCATGATAA TTGTAGCCCA	600
GGGAACCTTA GCTAAAATGG CTTCTTGCTT CCCTAATTTG AGCCTTAAGG CGAGGCAGAC	660
CATGAGTATT GAGACAAAGC CAATATCAAA TGTTTTTTGA TAAGTAGCTA TCCAGGCGAT	720
GTTTGGGAAA ATGAGATGCA ACAAGGGAAA AAGCCAAACC AAAACCATGC TGCTGATCAT	780
GAGCAAGGTG GTTTGTCTTT GAACCTTGCT GAGGAGTGGT GGTGGTCAA TAGTCAAGGA	840
TGAGTTTGT CTTCCCTTAC TATAGTGA CTAAACAGGAT AATAAAAGCA AGACGATGAG	900
TGGGTAGATA ATGCTGACGA TAAAGATATG ATTGCCAAGT GAAAAAGCTT GCTCTTCCCA	960
TCCCATTTGC TTAAACAGGC CTTGAAAGAC AATGCCTGAG CTA CTGGTTA TCAAATTAGC	1020
CCCTCCTGAA GCTCCCAAT TGACGGCTTG AGCTCCAATC AAAGGGTGTT TGTCCGCTTT	1080
TTGACAGAGG GTAATCGCTA GAGGACAGCA AACGGCCATA GTAGTAAAA ATCCAGCACC	1140
TAAAGCAGAC AAAAGGGTTG CCATCAGGTA TAAATCATG TAGAGGGCGT TAGGGTGGGT	1200
GCGTGTGCGG TAGAGAATGT GTTGAGCCAA AACATCAAGA GTACCGTTAG TTGTTGCAAC	1260
GTTATAAAG AGAGAGACGC TAAAAATGGT AAAAAAGAGT GAGGTTGGCC AAAAATGAAG	1320
AAGTTCTTTG GGGCTTAATC CCATGAGAGT GGTGCGATG AGGTAAGAAA AAGCAATAGC	1380
CAGCAGGCCA ATATTGATTT TGGTGCGGTA ACCAATTCCA ATGGCTAGAG CAATGG	1436

(2) INFORMATION FOR SEQ ID NO: 297:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1696 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 297:

CCATTGGGA AAGAACGTAA GAGTTTGCAG GGTGAGATTC CAGAAGAATT TTCAATGTCA	60
GCCGTTGACA TGTCTATGAT TGACCACATT CCAGATATGA TTGAAAATGG TGTGGACAGT	120
CTAAAAATCG AAGGACGTAT GAAGTCTATT CACTACGTAT CAACAGTAAC CAACTGCTAC	180

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AAGGCGGCTG TGGATGCCTA TCTTGAAAGT CCTGAAAAGT TTGAAGCTAT CAAACAAGAC	240
TTGGTGGACG AGATGTGGAA GGTGCCCCAA CGTGAAGTGG CTACRGGATT TTAATATGGT	300
ACACCATCTG AAAATGAGCA GTTGTGTTGGT GCTCGCCGTA AAATTCCTGA GTACAAGTTT	360
GTCGCTGAAG TGGTTTCTTA TGATGATGCG GCACAAACAG CAACAATTCG TCAACGAAAT	420
GTCATTAACG AAGGGGACCA AGTTGAGTTT TATGGTCCAG GTTTCGGTCA TTTTGAAACC	480
TATATTGAAG ATTTGCATGA TGCCAAAGGC AATAAAATCG ACCGCGCTCC AAATCCAATG	540
GAACTATTGA CTATTAAGGT GCCTCAACCC GTTCAATCAG GAGATATGGT TCGTGCAATTA	600
AAAGAAGGAC TCATCAATCT TTATAAGGAA GATGGAACCA GCGTCACAGT TCGAGCTTAA	660
GAAAGGAAAA GGAAATGATA GAGGCACAGG GTTCTTAGT GGATAAGCAA ACAAGATGCA	720
TTCATTACCA TAGCAAGCTG GATATTATG CTTTACAATG CTATGATTGT AAAAAGTATT	780
ATGCTTGTTA TCGGTGTCAT GATTCATTAG AACATCACCC TTTTGAGCCG TATCCCTTAT	840
CTTTGATACA GGATAAGCCT ATTTTATGTG GTGTTTGTCT AAAACTACTA ACATATAAGC	900
AATATAAAGA AAGCTTAAGT TGCCCCTTT GTTTTCTCG CTTTAATCCA GGTTGCCAAA	960
ATCATAAGGA ACGCTATTTT AAATAGCAA TCATCTAGTT TTGAAGTAGG AGAAAACTCA	1020
ATTTCAAGAG AAAATGAAGT AAATCTTCCC ACAATAAAC GCATAATATC AAGATTGTTC	1080
AATACCTGAT ACTATGCGTT TTTAAGATTT TAAAGACTTT TTTCTTTAT CTGGTATTTT	1140
GACTACTTGT TAAAACTGGG TTAATTTTCG ACTGTTAAT AGTTATTATG CAAAGTCTAA	1200
AAGGTTAGAA TTGTCAAAAC AATCCGTCTA GAGTATGCGT GATGCCAACC GTGGTGGATG	1260
TTCTCAGTCA TGCCGTTGGA AGTACGACCT TTACGATATG CCATTTGGGA AAGAACGTAA	1320
GAGTTTGCAG GGTGAGATTC CAGAAGAATT TTCAATGTCA GCCGTTGATA TGTCTATGAT	1380
TGACCATATC TCAGATATGA TTGAAAATGG TGTGGACAGT CTAAAAATCG AAGGACGTAT	1440
GGAGTCTATT CACTATGTAT CAACAGTAAC CAACTGCTAC AAGGCGGCTG TGGATGCCTA	1500
TCTTGAAAGT CCTGAAAAGT TTGAAGCTAT CAAACAAGAC TTGGTGGACG AGATGTGGAA	1560
GGTTGCCCAA CGTGAAGTGG CTACAGGATT TTAATATGGT ACACCATCTG AAAATGAGCA	1620
GTTGTTTGGT GTCGTCGTA AAATCCCTGA GTACAAGTTT GTCGCTGAAG TGGTTTCTTA	1680
TGATGATGCG GCGGTA	1696

(2) INFORMATION FOR SEQ ID NO: 298:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1022 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear



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## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 298:

CCGAGTTTAT TATGGTTTCT TCGGAATTTA TCTCAAAGAT TGAATTTGCT TGCAATAAGA	60
AAGAAAGTCT TTATAGTCAA AGCAAATTTA AGTATGCGAT TCGTTCGATG TTCGCAGGTG	120
CATTTTTAAC CTTCAGTACT GCTGCAGGTG CAGTTGGGGC TGACTTGATT AATAAAATTG	180
CACCAGGTAG TGGACGCTTC CTCTTTCCAT TCGTTTTTGC TTGGGGCTTG GCCTACATTG	240
TTTTTTTGAA TGCCGAGTTG GTCACCTCAA ACATGATGTT CTTGACTGCT GGTAGTTTCT	300
TAAAAAAAT CTCTTGAGA AAAACAGCTG AGATTTTACT ATACTGTACC TTGTCAACC	360
TTATCGGAGC CTTGATAGCA GGTGCGGCT TTGCTCATTG GGCAGCCTAT GCGAATCTGA	420
CACACGATAG TTTCATCTCA GGTGTTGTTG AGATGAAGTT AGGCCGCTCA AATGAATTGG	480
TCTTGCTTGA GCGGATTTTG GCAAATATTT TTGTAAATAT TCGGATTCTG TCATTTATTT	540
TGGTCAAAGA TGGTGGTGCC AAACCTTGGC TTGTGTTGTC AGCTATTAC ATGTTTGTAT	600
TCTTAACAAA CGAGCACATT GCGCGGAACT TTGCTTCTTT CCGGATTGTG AAATTCAGTG	660
TTGCTGCGGA TTCAATTGCC AACTTCGGTG TTGGAAATAT GCTTCGCCAC TGGGGTGTGA	720
CTTTCATCGG AAACCTTATC GGAGGAGGCC TCTTGATGGG TCTTCCATAT GCCTTCCTCA	780
ATAAAACGA AGATACTTAT GTAGATTAAG AAAATGAGCA CGATTGAGTC GTGCTTTTTT	840
CATTTTCAAA ATAAGGTAAT AGCTATTTCT TATATCAAAA TATAGAAAAC TGATATTTGT	900
AACTATAAC TCAAGGTGCT ACAATATCCT TAATAAAATA ATATGGAGGT CACCTTATGA	960
CTTGATGATT TAAATGTGAA ACTCTACAAC TACATGCTGG TCAAGTTGTG GCTCCAGCTA	1020
CT	1022

## (2) INFORMATION FOR SEQ ID NO: 299:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 663 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 299:

CCTTAAGTAA TCTCTGATAA TATTTTCTTT ATTAGCATAG GGGAATATCG ATATAATGGC	60
TTCATTATGA GTGGCAGGAA TATCCAATAT GGCAACTTTT CCAATAGATA ATTTAAAACT	120
CATTAATAAA GTTCCTTTAG GTGAAATGTC TATTTTCTTT GATTTTAATG CTAATTTAGA	180

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AATAGATTCT CTCGCATTAG TTACATAACC AGATATAGGC ATATCTGATA TAGATACCCA	240
AGGTATTTCA GTTCCCCAAA AAGTAGCTTC ACTGCGTGGA GGAGTTTTTC CTATTCTGAA	300
GTTAAGTAGG CTAGCAAATT TAATATATCT CCATGCTTCT GGGATTTTCAT ATATAGGATA	360
AGAGGTGTT TCGTCTTTGT TCCATAATA AGAGTTATCA TCTCCTTGGG AAACAATAGA	420
AATGTCCAAA TCTTTCTTTT TAATCTTGCC TTCTTCAAAG AGTTTTTGTT TTTCTGCTCG	480
TATTTTTTCA AGTAAACTT CGACTGATTC ATCATTTGGG TCTTGTTCAA CTAATTTTCC	540
TTGCATAGCA TATTGAAGAA TAGATTTTTT TAGTTTATCT GGAAATTCTT TATCTAGCTG	600
TTCTAGTCTA TTATAACTTT CAGCATATTC ATCTACTTTT TCTAAAGCTG ATTCGATTGC	660
TTC	663

## (2) INFORMATION FOR SEQ ID NO: 300:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 881 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 300:

CGTCGCTGAA CATGTCAACA GCAAAATTAAA CTAAACAAAC TAAAATTATG TGATACTTCA	60
CATAATTTTC TTTAGAAAAT ATTATCAGAA GAAAGTTGAG AAAAATGGCA GAAAAACAT	120
ATCCTATGAC CCTTGAGGAA AAGGAAAAAC TTGAAAAAGA ATTAGAAGAA TTGAAATTGG	180
TTCTGCGACC AGAAGTGGTA GAACGCATTA AGATTGCCCG TTCATACGGT GACCTTTCAG	240
AAAACAGTGA GTACGAAGCA GCTAAGGATG AACAAGCCTT TGTCGAAGGA CAAATCTCTA	300
GCTTAGAAAC AAAAATCCGC TATGCTGAAA TCGTCAATAG CGACGCAGTT GCCCAGGACG	360
AAGTAGCGAT TGGTAAAACA GTCACCATCC AAGAAATTGG TGAGGACGAA GAAGAAGTTT	420
ATATTATCGT AGGTTTCAGCT GGTGCAGATG CCTTTGTAGG TAAGGTTTCA AATGAAAGCC	480
CAATTGGGCA GGCCTTGATT GGCAAGAAAA CAGGTGATAC AGCAACCATT GAAACGCCTG	540
TTGGTAGCTA TGATGTAAAA ATCTTGAAGG TTGAAAAAAC AGCCTAAAAA CAGAAAAAGG	600
AGTGGGGAGG CGATGTGCTT CACTCACTCC TTTTTCATT TTGCTACTCT TCGAAAATCT	660
CTTCAAACCA CGTCAGCGTC GCCTTGCCGT ATGTATGGTT ACTGACTTTG TCAGTTTCAT	720
CTACAACCTC AAAACAGTGT TTGAGCTAA CTTGTCAGT TTCATCTACA ACCTCAAAAC	780
TATGTTTTGA GCTGACTTCG TCAGTTTCAT CTACAACCTC AAAACCATGT TTTGAGCCGA	840
CTTCGTCAGT TTCATCTACA ACCTCAAAAC TATGTTTTGA G	881

1331

## (2) INFORMATION FOR SEQ ID NO: 301:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 949 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 301:

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CCTTTTAA TACAAGTTAT TTTGATTAA CCGGCTTGTG TTAGCTGTG TGCAAAGCTG      60
TGGCAATCGT ATCTGCATAC AATTTTGCTC CTGCTTCGAT AGTGCTACTC TCACTCCCGA    120
AATGAACCTG GTCTGTTCCA GCCCAAATTT CTGGATGCTC TTTCGCAACT TGATTCCAAT    180
CTGCTATCGT AATGTAAGGT GTCTTCTCTG CCAATTCTCT CATATAGGCA GCAGCCTTCT    240
CAACGATGGC ATAGGTCTCT TTTGTCTTAT CTCCTCATA AGGAGTCACC AAAATCATAT    300
GGTGTCCCTT AGGAAGATTT TTCACGATAC TGTCCTCAGT ATCCTTGTA TTCTCAGGAT    360
TATTTACCCC AGTCGCAATG ACCACCGTCT TAGGTAAAAA TTTATTCTGG CTATTATTTA    420
GCATGATTTT ATTTGCGGTC TTGGTTGTTA CGCTGACCTG CGCGTTAATC TGTGCTCCAG    480
GAAGAGCTGT CTGTAGTGCT GTATTTGCCC TTAAAGCCAC TGAGTCACCA ATTAACATAG    540
TGCCATCAGC AATTCCTAAA CTGTTTGTCAT CTGCCCGTTC TGCCATCACC TTGGTCTGGC    600
CAATATTTGT TGCAGCTTGC TTCAAGCCAT TGACAGTCAA GTCTGTCTCA AACGCTCCCA    660
CTTGTGGTGC CAACAAGGTC ACCGTGCAGA CAATGATGGT CAAGATTCCT GTACCTGCTG    720
CAAGAATTGC GTGAATATAA GGCAGGGGAC GAAAGGTTTG GACAATAGGT GTGTTCTTGC    780
CTGCAATCCA AGGTTCCAAT ACATAAAATG ACAGACTGGC AAAGCCATAA GAACAAATCA    840
GAGTCAGTAA TACAGCAAGA AGATTTGATG TCAACTGTGA GAAAATGATA TAGAAAGGCC    900
AATGGAAAAG ATAAACCGCA TAGCTAGTAT CCGCTAAAAA GCTGATAAT                949

```

## (2) INFORMATION FOR SEQ ID NO: 302:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 622 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 302:

```

AAGATATATT TTTTACACAG AAGTATGCAA AAGTAAAGAG TGCAAAAAAT GGAATTAAAG      60

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1332

CGAAAATAAA AGCCGTGTAC AGGCGACCAA ACCAACGTAC ACGGCTAAGG AAAAATAACA	120
AAACTCAAGC AAAGGCAAGG CGCGTGGTTT TGTAGGTAT TTAGCAAGGG GACAAACCCC	180
TTTGTAATA ATCTCCTCTT ATTTTATCAA AATTAGAGGA AAATGACAAC TTAATTTATA	240
AAAAGGAAAA ATGGAGGATA TAAATGGAAA TTCTGTCTAA AGAAATACAG TTACAGGGCT	300
TACAACTTCT TAAACAGACT CTTGAACTT TAGTTGAGCT AGAAAAACAA CGATCTAGTA	360
AGTTAGATTT AATTTCTCGT AAAGAATTAA TGGATCTGCT AGGTATAAGT GCTACAACCC	420
TTGATAACTG GGAGGATCTT GGTCTTAAAC GATATCAGAC TCCGATGGAT GGAGCTAAGA	480
AAGTATTCTA TCGTCCGTCA GATGTGTATT TATTTTACG AATAAATAG GAGTTATGAA	540
ATGAAAATTG TTAATTTCAA ACCAACTAAA CAAATAGACG ATGGGTTTAA ACTGCCAGGT	600
ATTGACATTC TATTTGTCTC AG	622

(2) INFORMATION FOR SEQ ID NO: 303:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 1929 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 303:

CGCTAACTTG CAAACAAAAG AAGAACGCAA ACTCCACAAA TCCTTTACGC AGAACTCAA	60
TCTCATCTAC TTACCTTGCT GACTTGGTAG AGTATGTTGC AGACAAAGAC TTCTCAGTAA	120
ACGTAATTC TAAATCAGGT ACAACAACTG AACCAGCGAT TGCTTTCCGT GTCTTTAAAG	180
AACTCTGGT TAAGAAATAC GGTCAAGAAG AAGCTAACAA ACGTATCTAT GCAACAACTG	240
ACCGCCAAAA GGGTGCTGTT AAGGTTGAAG CAGACGCTAA CGGTTGGGGA ACATTGTTG	300
TTCCAGATGA TATCGGTGGA CGCTTCTCAG TATTGACAGC CGTTGGTTTG CTTTCAATCG	360
CAGCATCAGG AGCTGACATA AAAGCTCTTA TGGAAGGTGC GAATGCAGCT CGCAAAGACT	420
ACACTTCAGA CAAAATCTCT GAAAACGAAG CTTACCAATA CGCAGCTGTT CGTAACATCC	480
TTTATCGTAA AGGCTATGCA ACTGAGATCT TGGTAACTA TGAGCCATCA CTTCAATACT	540
TCTCAGAATG GTGGAAACAA TTGGCTGGTG AATCAGAAGG AAAAGACCAA AAAGGTATCT	600
ACCCAACTTC AGCCAACTTC TCAACTGACT TGCATCACT TGGTCAATTT ATCCAAGAAG	660
GAATCGTAT CATGTTTGAA ACAGTTGTCC GTGTTGACAA ACCTCGTAAA AACGTGCTTA	720
TTCTACTTT GGAAGAAGAC CTTGACGGAC TTGGTTACCT TCAAGGAAAA GACGTGACT	780
TTGTAAACAA AAAAGCAACT GACGGTGTTT TTCTTGCCCA CACAGATGGT GATGTACCAA	840

1333

ACATGTATGT GACTCTTCCA GAGCAAGACG CTTTCACTCT TGGTTACACT ATCTACTTCT 900  
 TCGAATTGGC AATTGCCCTT TCAGGTTACT TGAATGCTAT CAACCCATTG GACCAACCAG 960  
 GTGTTGAAGC TTATAAACGT AACATGTTTG CCCTTCTTGG AAAACCAGGA TTTGAAGAAT 1020  
 TGAGCAAAGA ACTTAACGCA CGTCTATAAT AGAAGAAAAG AGTGGTTTGC CCACTCTTTT 1080  
 TACTCTCTTT ATCCATAGAA ATTGGACTCA GCCAAGACTT GTGATATAAT ATAGAAAGCA 1140  
 AAAAGGCAGA CGCCTAGATA ATAGGAGAAA CTATGTCAAA AGATATCCGC GTACGTTACG 1200  
 CACCAAGTCC AACAGGACTA CTACACATCG GAAATGCTCG TACAGCATTG TTTAATTACT 1260  
 TGTATGCGCG CCATCATGGT GGAACATTTC TCATCCGTAT CGAAGATACT GACCGTAAAC 1320  
 GCCATGTCGA GGATGGTGAA CGTTCACAAC TTGAAAACCT TCGCTGGTTA GGCATGGATT 1380  
 GGGATGAAAG TCCAGAATCA CATGAGAATT ATCGCCAGTC TGAGCGTTTG GACTTGTATC 1440  
 AAAATATAT TGACCAACTA TTAGCTGAAG GAAAAGCCTA TAAATCTTAC GTTACAGAAG 1500  
 AAGAGTTGGC AGCTGAACGC GAACGCCAAG AAGTAGCTGG CGAAACACCA CGCTACATCA 1560  
 ATGAATACCT TGGTATGAGT GAAGAAGAAA AAGCAGCTTA CATCGCAGAA CGTGAAGCAG 1620  
 CAGGGATCAT CCCAACTGTT CGTTTGGCTG TCAATGAGTC AGGTATCTAC AAGTGGCATG 1680  
 ATATGGTCAA AGGCGATATC GAATTTGAAG GTGGCAATAT CGGTGGTGAC TGGGTTATCC 1740  
 AAAAGAAAGA CGGTTACCCA ACTTACAAC TTGCCGTTGT TATCGATGAC CACGATATGC 1800  
 AAATCTCTCA TGTATCCGT GGAGATGACC ATATTGCTAA TACACCAAAA CAGCTTATGG 1860  
 TCTATGAAGC TCTTGGTTGG GAAGCTCCAG AGTTCGGTCA CATGACCTTG ATTATCCACT 1920  
 CTGAAACTG 1929

## (2) INFORMATION FOR SEQ ID NO: 304:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 708 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 304:

AAATTTAAGA AAAAGGAGAC ACATCATGTC TAAAAAGTA TTATTTATCG TCGGATCACT 60  
 ACGTCAAGGT TCTTTCAACC ACCAAATGGC GTCGAAGCT GAGAAAGCAC TTGCTGGTAA 120  
 AGCGGAAGTT AGCTACCTTG ATTATTCAGC CCTTCTCTC TTCAGCCAAG ATTTGGAAGT 180  
 TCCAACACAT CCAGCTGTAG CTGCTGCTCG TGAAGCAGTT CTCGTTGCGG ATGCTATCTG 240

1334

GATTTTCTCT CCAGTCTACA ACTTCTCTAT CCCTGGTACA GTGAAAAACT TGCTTGACTG	300
GCTATCTCGT GCCCTTGACT TGTCTGATAC ACGTGGCGTT TCTGCCCTTC AAGACAAGTT	360
TGTCACAGTA TCATCTGTAG CCAATGCAGG GCACGATCAA CTTTTCGCTA TCTACAAAGA	420
CCTCTTGCCA TTTATCCGTA CACAAGGCGT TGGTGATTC ACTGCTGCAC GTGTTAATGA	480
CTCTGCCTGG GCAsACGGAA AATTGGTTCT TGAAGAAACA GTCCTAAACT CACTTGAAAA	540
ACAAGCTCAA GACTTGGTCG AAGCTATCAA GTAAC TAACA CTCAATAAAA ATCAAAAAGC	600
AAACTAKGAA GCTArCCGCA AGCTACTCaA gCACTGCTTT GAGGTTGTAG ATAGAAGCTGA	660
CGAGTGThnA ACATATATAC GGTAAAGCGA CACTGACGTG GCTTGAAn	708

(2) INFORMATION FOR SEQ ID NO: 305:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 781 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 305:

CTTCTTTTCT TGGAAATAGG TGTATAATAC GTTTATTAAA TTTTGGAGGA GTTGTCTATG	60
AAGAAAAGTT TTATCCATCA ACAAGAAGAA ATTTCCCTTG TCAAAAACAC TTTTACCCAG	120
TATTTGAAAG ATAAGCTAGA AGTTGTCGAA GTTCAAGGTC CTATCTTGAG TAAGGTCGGT	180
GACGGAATGC AGGACAACCT GTCTGGTGTG GAAAATCCAG TATCGGTCAA GGTTCCTCAA	240
ATCCCTGATG CTACTTATGA AGTGGTGCAC TCACTTGCTA AATGGAAACG CCACACCTTG	300
GCTCGTTTTG GCTTTGGTGA AGGAGAGGGT CTCTTTGTCC ACATGAAAGC CTTTCGTCCA	360
GATGAGGATT CCTTGGATGC AATCCACTCT GTTTATGTTG ACCAGTGGGA CTGGGAGAAG	420
GTTATCCCAA ATGGTAAGCG TAACATCGTT TATCTAAAAG AAACAGTTGA GAAGATTTAT	480
AAGGCTATTC GCCTGACTGA GCTAGCTGTT GAAGCCCGCT ATGACATCGA GTCTATCTTG	540
CCAAAACAAA TTACCTTTAT CCATACAGAA GAATTGGTAG AACGCTACCC AGACTTGACA	600
CCGAAAGAAC GTGAAAATGC GATTTGTAAA GAATTGGAG CCGTCTTTTT GATTGGTATC	660
GGTGGCGAGT TGCCAGATGG TAAACCGCAC GATGGACGTG CACCAGACTA TGATGACTGG	720
ACAAGCGAGT CTGAGAATGG CTACAAGGT CTAAATGGTG ATATTCTTGT CTGGAATGAG	780
T	781

(2) INFORMATION FOR SEQ ID NO: 306:

- (i) SEQUENCE CHARACTERISTICS:

1335

- (A) LENGTH: 846 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 306:

```

CCCCGATCTT GTAGGGTTT AACGGGCACG ATTTTCATAT CCGTCTTGAT TGTTTTAGCC      60
GCTTCTAGGG CTGTTTGGA GTTGTTTTTC GCGTCCGGAT GCGCCTTTTG TTCTTCTTCG-----120
CTAACAGGGT TATCAGGAGC AAAGAAAATA GCAGCACCTG CCCTAGCCGA AGCTACAACC      180
TTCTTATCAA TACCTCCAAT GTCTCCCA CA TTACCATCGC GGTCAATGGT ACCTGTACCG      240
GCAACAATAC GACCATTACG AAGATCTGGG TGAGCTATTT GAGTATAGAT AGCTAGACTA      300
AACATGAGAC CAGCACTTGG ACCGCCAATA CCAGCTGTTG AAAAGCTAAT TGGGACATTG      360
CTGATTACCT CTGTACGGTC AATCAAGCCG ATTCCAATTC CATTTTGGCC ATTTTCCAAG      420
GTGATGATTT TTCCTTCTGC AGACTTGGTT TGCCCATCCT CTTCATAGGT GACCTTGACG      480
GAATCCCCTA ATTTTGGAGA ACTGACGTAA TCAATCAAGT CTTTGGAAGT ATCAAAGGTC      540
TGATCATGTA CTGCTGTGAC TGTATCAGAG ATATTGAGAA TCCCTTTAAA GGTGAATTA      600
TCCGTCACAT TCAAAACATA AACTCCAAAG TACTTGAGTT CGATATCCTT ACCAGCTGTT      660
TTTAGTCCTT GATACTTGGC CATATTTTGC GATGTTTGCA TGTAAGAATTG ATTGATTGCG      720
ATAAATTCAA CATCGGAAGA ACCACCTGTA GTCTCCTGAG CACTACGAAT ATCTGTAAAA      780
GGTGTCAACC AAGCATAAAT CATATGAGCT AAAGTGGCAT GTTGAACACC AACCGTAACG      840
AATTGT

```

## (2) INFORMATION FOR SEQ ID NO: 307:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 829 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 307:

```

GCGATCTGCT TGGGCTTTTC CTATTACCTT ATCTAATAAA TAGGTACGCA GACTCATAAC      60
CATATAAAGT CCACCCCCCA TGGCACCGAC AAGAGCTACA TAAAAGAAGC TCCACAAACG      120
TCCACTTGGT TGAAGAAAAA ATCCTAACAG CCACTGGATG GTTCCTATTA ACAGAAACAT      180
GACTAGGGTC AGCAAAGTGA TTAATGGT TCGCTTCAAA ATCACCTTGC GCTTGACACC      240

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1336

AGTTACTTTA CAAATATCCC GATACATCAA GACGTTAGGA ATGATGAGAG CAATGGTTGT	300
TGAAATCAAA GGACCATAAC TGTGGAAGAG GGCGATGGTA GGTAGTTGCA AGACTAGCTT	360
GGCAATAGAA CCATAGATAA AATAGAGAAC GGCCTTGCGG TTCCGGAACA TGGCCTGAAG	420
CATTGGAGAC AAGACCATGT ACAAGCCTAA AATAATAGAC TGCAAACTG CAAAGACAAA	480
TAAGCCCAGA GCCAACTAT CTGGCTTACC ATAGAAGACC GTATAAAGAG GTTCTCTAC	540
CATAACCACT CCAACCGTTG CTGGTAGCAA GAACATAAAG AGTAGGGTGA GACTGTCCTG	600
AACGAGACGA GAAGCTGCTT TCAAGTCCCC CTGACATAG TTTCCGTC AAGTGGCAA	660
ACCAACACTC CCAATCGAAA CCCCTACAGA AATCAAAATC ATCGTGATTT TATTAGGATT	720
GGCTGAGAAA TAAGAAAACA TGACAACCAA GTCCTCATTG CTGTAGTTGG TAAACCAGCT	780
CATACTATTG ATAAAGGTCA GCTGAGTCCA AATCTGGAAG AGCTGGATG	829

## (2) INFORMATION FOR SEQ ID NO: 308:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 464 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 308:

CGAACATCTT GCTGGCTGAT TCGTCTGCCG CCATCGCAGC CCCGAACACA TTGCGACCCA	60
TGGCAAGCGG GCTCAATCCG CACATGGGAT CCGTGCCAAA GCCCCGCGTG TGCATCATTT	120
GCTCATCTAG TAACGTATGA GGTTCGCTT CGCTGTCGAT AAACCGATAT TCAATCGCAC	180
CACTGCTCGT TCTCCGCGGA GGGGAAACCG ACTGCGGTAG GATGAACTCC AGAGAAGAGA	240
GATCAGGACC TACCAGGTGC GGCTCGTTGA AGCTGTTGCC GCTTAGCAGC AGGCTCGCCA	300
CCACGCATTC CCAGAACTCA ACGGGGGTTT GATCGGCGTT CGGTTGCTGA CTAATAACTC	360
GGTGACGGG ATGCGAAGTG GCCACTTCTG GCACACCGTT CTTGTCTTCG TAGAGAGCAA	420
TTGGGAGGGT GGCCAGCGTT TCGCGATGA GCGCACGCA GGCC	464

## (2) INFORMATION FOR SEQ ID NO: 309:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 982 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 309:



1337

CCGCTCTATAA TGGTAATAGA TTTTATTTGG AGGTTTTTAT GTCATTTCTA TCAAAAAATG	50
GAGCAGGTAT CTTGGCCTGC CTTCTCATTT CCATCCTATC TTGGTACTTA GGAGGATTCT	120
TCCCTGTGGT TGGCGCGCCC GTTTTGGCCA TTTTCATAGG CATGCTCCTA CATCCCTTTC	180
TCTCGTCCTA TAAACAACTG GATGCTGGTT TGACCTTTAG TTCCAAGAAG TTGCTCCAAT	240
ATGCCGTTGT CTTGCTTGGT TTTGGTCTCA ATATCTCGCA GGTCTTCGCA GTTGGCCAAT	300
CTTCACTCCC TGTCATCCTG TCCACTATCT CAATAGCTCT GATTATTGCC TACCTCTTCC	360
AGCGTTTCTT TGCCCTGGAT AAAAACTGG CTACCTTGGT TGGAGTAGGT TCTTCTATCT	420
GTGGGGGTTT TGCCATTGCA GCGACAGGCC CGTTATTGAT GCTAAGGAAA AGGAAGTAGC	480
CCAAGCCATT TCCGTTATCT TTTTCTTCAA TGTCTTGGCT GCGCTCATCT TTCCAACCCCT	540
CGGCACCTGG CTTCACTAT CCAATGAAGG CTTGCGCCCTC TTTGCAGGGA CTGCGGTCAA	600
CGACACTTCC TCTGTAACGG CTGCCGCCAG CGCTTGGGAC AGTCTTTACC AAAGCAATAC	660
CCTCGAGTCT GCAACCATTG TTAACTCAC ACGTACTTTG GCCATTATCC CTATCACGCT	720
CTTCTATCC TACTGGCAAA GTCGCCAACA AGAAAACAAG CAAAGCCTGC AACTGAAAAA	780
AGTCTTCCCA CTTTTATCC TTTACTTTAT CCTTGCCTCT CTCCTCACTA CACTACTCAC	840
CTCTCTAGGT GTGTCCAGTA GTTCTTTAC TCCTCTCAA GAACTCTCTA AATTCCTTAT	900
TGTCATGGAC ATGAGTGCTA TCGGTCTCAA AACCAATCTG GTCGCTATGG TCAAATCCAG	960
TGGAAATCC ATTCATCATG GA	982

(2) INFORMATION FOR SEQ ID NO: 310:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1939 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 310:

CTAGCTGCCA ATATGATTGG GGTGCAGAAG CGCGTGATTA TCTTTAATCT TGGCTTGGTT	60
CCTGTGGTCA TGTTTAACCC AGTGCTTCTG TCCTTTGAAG GATCCTATGA GGCAGAAGAA	120
GGCTGTTTGT CCTTGGTAGG TGTGAGATCA ACTAAGCGTT ATGAAACCAT AAGGCTTGCC	180
TATCGTGACA GCAAGTGGCA GGAACAGACC ATTACCTTGA CAGGCTTCCC AGCTCAGATT	240
TGCCAGCATG AGCTGGATCA CTTGGAAGGA CGAATCATTT AGGAGGAAAG CAAATGAAAC	300
GAATAGTCTT TGAACCTATT TTTATCGCAA CGACCTGGTA TATCTTTTTC CCGCCCTTA	360

1338

ACCTGACCAG CTGGGAATTT CTCTTCTTCC TCTGTGGGCA TTTGTTAGTT GTGGCAATAT	420
TATTTGGCTT TGGCAAGGGG ATAAACCTTG TCAAAACGGT TCATGTGCGC CACGGTAAGG	480
CGGAAGCTGC CTTAAATCTT GAGGGTTTCA AAATCAATCG GTTAGGGAAA ATTCTGTTAG	540
CTTCGATTGG AGGAATTCTT CTCTTGGCAG CTTTGGTTTc CTTGGTAACT TCCAGCATGT	600
TTCAGGCTAA AAATTATGCC AATGTAGTCA CGGTTACGGA AAAAGACTTT ACTGAATTC	660
CTAAGAGTGA CACCAGTAAG GTTCCTATCC TAGATAGAAG TACTGCTGAA AAAATTGGAG	720
ACCGCTACTT GGGTTCCTTA ACCGATAAGG TGTCGCAATA CGTAGCGGCA GATACCTATA	780
CCCAATTGAC AATTGATGGG AAACCTTATC GGGTCACACC ACTAGAATAT GCAGACCCTA	840
TCAAATGGTT TAACAATCAA GCCAAGGGAA TCGGTGAGTA TATTAAGGTG GACATGGTAA	900
CTGGAATGC GGATTGGTG GACTTGAAGA CACCAATCAA GTATTCAGAC TCGGAGTATT	960
TTAACCGTGA TGTCAAACGT CACCTGCGCT TGAAGTACCC GACCAAAATC TTTAAACTC	1020
CATCTTTTGA GGTGGACGAT GAGGGCAATC CTTTCTATGT AGCAACGGTT TACCAAAAGC	1080
AATTTGGACT TGCTGTTCTT CGTCCTGCTT CAGTCATTAT CTTGGATGCT ACAAATGGAG	1140
AAACCAAGGA ATACAGCTTA TCAGATGTTT CAGAATGGGT GGACAGGATC TATCCAGCAG	1200
AGGAAACCAT TGAGCAAATC AACTACAACG GCAAGTACAA GGACGGTTTC TTGAATGCCA	1260
TGATTTCCTA GAAAAACGTG ACCCAGACTA CCAATGGCTA TAATTACTTG TCTATCGGTA	1320
ATGACATCTA TCTCTACACA GGTGTGACGT CGGCTAATGC GGATGAGAGT AATCTTGGTT	1380
TCATCCTTGA AAATATGCGA ACAGGAGAAA TCACTAAGTA TAGCTTGGCT TCTGCCACAG	1440
AAGAATCAGC CCGTGAATCA GCAGAAGGTG CTGTTCAAGG GAAATCCTAC AAAGCAACCT	1500
TCCCAATCCT CATCAACCTC AATGACAAGC CTCTCTACAT CATGGGCTTG AAGGACAATG	1560
CTGGCTTGGT CAAAGAGTAC GCCCTGGTAG ACGCAGTCCA GTACCAAAAT GTTATCGTTG	1620
CTACTACAGT GGAAGAGATG CTCAGCAAGT ATGCCAATAA AAACGACCTT GAAATTGACA	1680
ATGCAACGAC AGAAAGCATC AATGGAGTAG TAGCAGACCT CAAATCAGCT GTTATCAAGG	1740
GAGACACTGT CTACTTCTTT AAAGTTGATG GCAACATCTA CAAGGTCAAG GCTTCAGTAT	1800
CCGATGACCT TCCTTACCTT GAAAATGGTA AAACCTTCGA AGGTCAAGTA GGAAAAGACA	1860
ATTATCTCAA GACCTTTAAG CTACGGTAAA AATAGGTTTT TTTCAGAAAG TATATGTTAT	1920
AATAAGGTAA ATTAAGCCG	1939

(2) INFORMATION FOR SEQ ID NO: 311:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 907 base pairs
  - (B) TYPE: nucleic acid

1339

(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 311:

CCTGCTAATA GAGAGAAAGA CTAGGAGTAG AAGTAAGCCA ATTAAATAAT GAGAAAGTTT	60
CATACCCCGT CCTTTCATGT AGATTGGTA TCGAAAGATA TCTGCGGATA TAAATGTAAC	120
ATTATTTTC TAATCTGTCA ATAAAATTC TGACAATTTA ATAAATACAA CAAGGAGAGA	180
GCAACAAGAC TTTCTCCTTT GTTATCCTAT TCTAAATGT TTTTACCTTA ATCTGATAAA	240
ATAATATCTT CGAGGGAGTA GCTAGCCGTC CAATCAAGAT ATTGTTTAGC TTTTGAAGCA	300
TCTGCTAGGA CACTGGCTGG GTCAGTAGCA CGTCGAGCAA CAATCTCGTG TGGGATTTT	360
TAATTTAGTA ATTCTTCAGC AGTTTAAAG ATTTCTTTGA TAGTATAGCC TTTTITAGTT	420
CCTAAGTTAA AGATTGAGA AGAACTGTCT TCTTGAAATA GGTAGTTCAT TCCTTAACA	480
TGAGCCTATG CAAGGTCCAA GACATAAATG TAATCTCGAA TACATGAACC GTCACGTGTA	540
TCGTAGTCAT CTCCAAATAT TTTAAGCTA TCATTTTGTC CCAATGCGGT CTTGTTGATA	600
TTTGAATGA TGTGAGTTGG ATTTTTCACA CGCAGACCGT TTGAAGCATC CATTTCAGCC	660
CCAGCAACAT TAAAGTAACG GAAAATAACA TATTTCCAGT CGTAGCGATT GGCCATCCAG	720
TAAATCATTC GTTCGCCCAT CAGTTTGTG TCTGCATAAG GGTGACAGG GTCGAGCAGG	780
GTATCTTCAG TCACCGGCTT GTCAATACAG TTATTTCCAT AGAGAGAAGC AGTCGAAGAG	840
AACATGATTT TTTGAATGCC AACTTCAGAT AAGACTTTGA GAACTTGTT CATACCAGCA	900
ACGTTGG	907

## (2) INFORMATION FOR SEQ ID NO: 312:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 2170 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 312:

CCACATAAAG GTAAATATCT TTTGTACTAT CTTGGGCATC CAAGAAAAGC AATTGGGCAA	60
TAACAGAGTT AGCCATATTG TCTCAACCG GACCTGTCAG CATAATGATG CGGTCTTTGA	120
GAAGACGTGA GTAAATATCG TAAGAACGTT CTCCACGGCT TGTGTTTCA ATAACACAG	180
GAATCATTC TTTCTCCTTT TGAGTTTAA TTTGTTGGT CAAATCACTG AAGATAAGAC	240

1340

TATTATAATA	TCTTGGTCAA	AAAAGGTCAA	ATTTTGGCTC	TGCTTTCATT	AGACAGAAAC	300
AAAAACCCAA	CCTCCTTTCG	TGACTGGAAA	TACTTTTCCA	AGTCATTCTT	CTTTTCGATC	360
TTATTTTGTA	CCGAACAAGC	GGTCTCCAGC	ATCTCCAAGA	CCTGGAACGA	TATAACCGTG	420
TTCGTTCAAA	CGTTCATCCA	AGGCTGCTGT	AAAGATTTCT	ACATCTGGAT	GAGCTTCTTG	480
AAGGGCTTTT	ACACCCCTCTG	GAGCAGATAC	AAGGCAGACA	AATTTGATAT	TTGATGCGCC	540
ACGTTTTTTA	AGAGAATCAA	CAGCCAAGAT	TGCTGAGCCA	CCTGTTGCCA	ACATTGGGTC	600
TACTACAAAA	ATTTGACGTT	GGTCAATGTC	CTCAGGCAAT	TTCACCAAGT	ATTCAACTGG	660
TTGAAGTGTT	TCTTCATCAC	GGTACATACC	GATGTGGCCA	ACTTTAGCAG	CTGGAACCAA	720
GTTCAAGAGA	CCATCAACCA	TCCCGATACC	TGCACGCAAG	ATTGGGACGA	TGGCCAATTT	780
CTTACCTGCC	AATTGTTTTT	GAAGTGTGTT	TGTAATTGGT	GTTTCGATTT	CCACATCTTC	840
TAGTGAAGA	TCACGAAGTA	CTTCATACCC	CATCAACATT	GCAATCTCAT	CTACTAGCTC	900
ACGAAAAGCT	TTTGTAGAAG	TATCTGTACG	ACGCAAGATT	GACAATTTGT	GTTGAATCAG	960
TGGGTGATTA	ATAACTTCAA	TTTTTCCCAT	TTTTGGAATT	CCTTCTTTCA	ATTTATTCTT	1020
CTTATTATAC	CAAAAACGG	TTTAAAAATC	TTTCTAAACC	ATTTATTTTT	GATAATTTTT	1080
ACATTAGATC	AGCCTCTTTA	AGAGCTGTCT	GTAAGTGTCT	AAGTGGTAAA	TGGGTCAATT	1140
CTGTCCCTTT	TTCTTGATAA	AGGTATTGGG	CGTAGTCGTC	CATTGGGTAC	TGGTTGATAT	1200
AAACCACGCG	CTTGACGCCG	ACCTGAAGCA	ATTGTTTTGT	ACAGTTGAGA	CAAGGAAAAT	1260
GGGTTACATA	GGCTGTAAG	CCTTTGGGAA	CACCACGCTC	AGCACCTTGA	AGGATAGCAT	1320
TGACCTCAGC	GTGAAGGGTG	CGAACGCAGT	GGCCTTCAAT	GACCAAACAT	TCGTGATCAA	1380
TACAATGCTC	AGTCCCTGAC	ACCGAACCAT	TGTAACCAGT	GGAAATAACC	TTATTATCTT	1440
TTACCAGAAT	CGCGCCCACT	TTAGCACGTT	TACAAGTGGG	ACGATTCGCA	ATTAGTAGAG	1500
CTTGGGCTGC	AAAATACTCA	TCCCAGGCCA	GTCTTTTTTC	AGTCATCTCT	TTTCTCCTTT	1560
TTCTCTATTT	TTTAAAAAAT	GGTAAACCTA	AATCTGCAAT	CTTTTCAGCT	GGTACCTTCA	1620
TGCCATCCTT	GATCCATTTT	AGAAGGACAG	AGACGATGGC	TGAGCTCCAG	AAGGAATGAA	1680
GATAAGAGCT	GACACCTTTT	GATTTCCCAT	GGTATTTTTT	TAGAAATTCC	TGCATGGCTT	1740
GGACAAAGAT	TTTTTCCAGA	TGGTAATCCA	AGGCCAATTG	AATTACTCTA	GCTTCCTTTC	1800
TGGCCTCCCG	GAAAAGGTGA	ACCCAAACCA	AATAAAGGTC	TGTCTTTAAA	TCGTAATGAT	1860
GCAGCTGTTT	CATAATATTG	TGGACAGTTC	GTTTAAAGAC	GCTCTCTAAA	ATTTCTCTTT	1920
TGGAGTCATA	ATTGCGATAA	AAGGCCGCAC	GCGAAACACC	TGCACGTTTG	ACCAATTCAG	1980
AAATACTAAT	CTTGGTCAGT	TCCTTTTTTT	CCAAGAGTTG	CAAGAGGGCT	GTTTCAATGG	2040

1341

CTTCTCTGGT TAATAAATTG GATTCTTGGT TTGATTTTCT GAGATTTTCA AGAGACTTTT	2100
CAGAGATTCT ACGTTCAGAC ATAACATTTT CTTTCTACTT GTCACAACAG ACGGATGATG	2160
CTTTTGTTC	2170

## (2) INFORMATION FOR SEQ ID NO: 313:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 539 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 313:

ATCTGCACGA ATCAGGGCTT TCTAAGTGAC TATTTCCACC GAAATATTAT TTATATCAGG	60
AGGACATTCA TATGTCACGT TATACAGGAC CATCTTGGAA ACAAGCTCGT CGTCTTGGCC	120
TTTCACTTAC AGGTACAGGT AAAGAATTGG CACGTCGTAA CTACGTACCA GGACAACACG	180
GACCAAACAA CCGTTCTAAA TTGTCAGAAT ACGGTTTGCA ATTGGCTGAA AAACAAAAC	240
TTCTTTTTCAC TTACGGTGTA GGTGAAAAAC AATTCCTGTA CTTGTTCTGTA CAAGCTACAA	300
AAATCAAAGG CGGAATCCTA GGTTCAACT TTATGCTTCT TTTGGAACGT CGTTTGGATA	360
ACGTGTGTTA CCGTCTTGGT CTCGCGACTA CTCGTCGTCA AGCTCGTCAA TTCGTAAACC	420
ACGGTCACAT CCTTGTGAC GGGAAACGCG TTGATATCCC ATCATCCGC GTAACCCAG	480
GTCAAGTGAT CTCAGTTCGT GAAATATCAT TGAAGTTCC AGCAATCCTT GAAGCAGTA	539

## (2) INFORMATION FOR SEQ ID NO: 314:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 667 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 314:

CCGGTTTTGC TCCTTCTCTA CGGCTACGAC GTGATGTATC TCTGATGATA TCCACTGTTT	60
CTGTAGCAGG CGTAGGTGTT TCTGGACCTG CTTGTTCTGC TTTTCTCTCT GCCGTCGTAT	120
AGGAAACAGC TACCCTTGTT GGGGTTTCAT TGTATTCTCT TTCAAGTTTC TTAGGTCTAA	180
CAGGACCTGG ACCTGGTCTT GATCCACTTT CTTCCGCTGG AGAAGAAGGT ACATCTTGAC	240
TTGGATGACT TGGAACACCA GGAGTTTCTC TTTGAATCTC ATCTGCTGGA GAAGCTGGTA	300

1342

CACCTTGACT TGGGTGAGTA GGCACGGTAG GAGCTTTTCT CATAATCTCC TCTACCGTTG	360
ACAAGGAATC AGCCATGAGT TCTTCAGTTG AAGGTTTCATT TGCAGGAGTG CGAACTACTG	420
CCTCATCTTC TTTCAGAACT TCATCATAGC CTTTACTTTT TTCTAAATCT CTCAGAATCT	480
GCTCTTTAAA GCGTAATTTC TCTTCTGCTC TTGACTTTTC ACTCAAAAGT TTTTCCTCCT	540
TGTTGAGAAT CCATAATATT AGAGCTGAGA AGTCCAAAAA AAGCAATCTA TGATACTTTT	600
CCTAACGGAT TTTGTCAATT CCCAGACCAT ATCATACCAT GTTCCCTG CAAAGGTTGA	660
CTGGGAA	667

(2) INFORMATION FOR SEQ ID NO: 315:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1483 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 315:

GGGAAGCCAA GGTATTTTAT CGGATGAAGT TGTTACTAGT TCTTCACCGA TGGCTACAAA	60
AGAGTCTTCT AATGCAATTA CTAATGATTT AGATAATTCA CCAACTGTTA ATCAGAATCG	120
TTCTGCTGAA ATGATTGCCT CTAATCAAC CACTAATGGT TTAGATAATT CGTTAAGTGT	180
TAATAGTATC AGCTCTAATG GTACTATTCG TTCCAATTCA CAATTAGACA ACAGAACAGT	240
TGAATCTACA GTAACATCTA CTAATGAAA TAAGAGTTAT AAGGAAGATG TTATAAGTGA	300
CAGAATTATC AAAAAAGAAT TTGAAGATAC TGCTTTAAGT GTAAAAGATT ATGGTGGCGT	360
AGGTGATGGG ATTCATGATG ATCGACAAGC AATTCAAGAT GCAATAGATG CTGCAGCTCA	420
AGGGCTAGGT GGAGGAAATG TATATTTTCC TGAAGGAACT TATTTAGTAA AAGAAATTGT	480
TTTTTTAAAA AGTCATACAC ACTTAGAATT GAATGAGAAA GCTACAATTC TAAATGGTAT	540
AAATATTAAG AATCACCCCT CCATTGTTTT TATGACAGGT TTATTTACGG ATGATGGTTC	600
GCAAGTAGAA TGGGGCCCAA CAGAAGATAT TAGTTATTCT GGTGGTACGA TTGATATGAA	660
CGGTGCTTTG AATGAAGAAG GAACTAAAGC AAAAAATCTA CCACTTATAA ATTCTTCAGG	720
TGCATTGCT ATTGGGAATT CAAATAACGT AACTATAAAA AATGTAACAT TCAAGGATAG	780
TTATCAAGGG CATGCTATTC AAATTGCAGG TTCGAAAAAT GTATTAGTTG ATAATTCTCG	840
TTTTCTTGGG CAAGCCTTAC CAAAACGAT GAAGGATGGG CAAATCATAA GTAAGGAGAG	900
CATTGAGATT GAACCATTAA CTAGAAAAGG TTTTCCTTAT GCCTTGAATG ATGATGGGAA	960
AAAATCTGAA AATGTGACTA TTCAAAATTC CTATTTTGGC AAAAGTGATA AATCTGGGGA	1020

1143

ATTAGTAACA GCAATTGGCA CACACTATCA AACATTGTCTG ACACAGAACC CCTCTAATAT	1080
TAAAATTCAA AATAATCATT TTGATAACAT GATGTATGCA GGTGTACGTT TTACAGGATT	1140
CACTGATGTA TTAATCAAAG GAAATCGCTT TGATAAGAAA GTTAAAGGAG AGAGTGTACA	1200
TTATCGAGAA AGCGGAGCAG CTTTAGTAAA TGCTTATAGC TATAAAAACA CTAAGACCT	1260
ATTAGATTTA AATAAACAGG TGGTTATCGC CGAAAATATA TTTAATATTG CCGATCCTAA	1320
AACAAAAGCG ATACGAGTTG CAAAAGATAG TGCAGAAATTT TTAGGAAAAG TATCAGATAT	1380
TACTGTAACA AAAAATGTAA TTAATAATAA TTCTAAGGAA ACAGAACAAC CAAATATTGA	1440
ATTATTACGA GTTAGTGATA ATTTAGTAGT CTCAGAGAAT AGT	1483

(2) INFORMATION FOR SEQ ID NO: 316:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 2453 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 316:

CCTGAACGCT TTTTATAAA TATCATAAAG CCAATCTGAT TTATCAAGTG TGTCTAAGCG	60
ACGCGAATTA AAATTCATTG CATACTCCAT CGCTTCTAAA AAATCATTT TTGAAAAGAC	120
GTAAAAATCA TCTAAATTCT GACTCCAATA TAATAACAAA ACCAATCCCA TAATATCCTC	180
TGGTTGATTA TTCAATAAAT TTAAGTTGGT TTCATAAAAC CCTGGAGTTC CAAATAGAGG	240
CAACTTTTTT TCTCAATTT GAGTTTCTTT CCTTAGGGCA TGCTCAAAGT CTATAATATA	300
AATATTATTT CTATTATCAA TAAGTATATT ATTAAATGAT AAATCTCTAT AGGAAAGATT	360
ATATTTGGAG TTTATTATCT CCATATAATC AATTAATGTT AAAAACCAAT CATACGAGCC	420
ACTAACCATA TTATACTCGC TTAATTTATC TGCAATAATA AACTCAAATT CCACAAAATA	480
CGAATTCTTT ATGTAAAAAT CGTTAAAAAC TTTTGGAGTA AATTCCTCCT TTTCCAATTC	540
TACTAATATT TCTCTTTCAT TTATTAAACG ATTCACAGAA TCTCTATTG TAAATCAAC	600
CAACGATAAA TCACTAGCTT CTTTAAATAA AGAATAAACT CGCTTTTGAG TATTAAATAC	660
TTTATAAACT CCACCTTTGG CATTTTATAG AATCACTTCC AAAATAATAT ATTGATCAGG	720
AATAGTGTTA TATCTTGGA TATAGTAATC CCTTATTGGA ACATTACAT TTGAAGGGAT	780
TTTCTTATCT CTTTATCCT TGAAAGTGCT ATCTTTTACG AACTCCCCAT ATCTGTAATA	840
TACAACCTCG CTAAGTTGAA ATCTGAAATC TGATGGTATG TTTACACCCT TTACACCTTT	900

1344

ATACAATATT TCTAATTTGT GTAACAAACG TTGAACTCT TTATTATCTT TTGGATAAAAT	960
TGTAATGAAT TTCCCGACTT GTGAATAACC ATTAAGCCCT GTATTTTGCA AAGAAAGTTC	1020
TTTAATGCTA ACCAAAATTT TGAAATTAT CTTCCTCTCT CTAGAAAATA TAAATCAAA	1080
GAATTTTTTA GCAACCAAAT TAGCATTAA TATTGAAGCG CTCAGGTGTA TTTTAAATCC	1140
CTTAGATTGG GTGATATTAG ACGGCAAATT ATATAACCAA TGTTCATCAC TAAATTTATC	1200
ACTAATTTTA TATTCTAATA ATAAATTATG GTATGCGTCT TCTATTTTCTAG TTTTATAGTC	1260
CAATAGTTT AAATACTTTT CGTAATTCAT ATTAAGAAAT CTCTCCATA AATTTTITAGA	1320
CCATCATTTA AAGCCAAACA ATTTAAAGCG TGATAATAAA TGTTGATAAT CAATGTAATC	1380
TTCACTCCTC TATTTTGTA TCCCTTCACC AATAATTTTA TGCTATATCT ATTTTCTCGA	1440
GGCAATTTAT AGGACTTCAA GATAAAACCA TAAAGAGAT AAGTATTATA ATCTGACAAT	1500
CCAGTTTCAG AATAATTTT TAGAAAAATA TCTAGTGATT CTGATAATTC ATCCGGAATA	1560
ATTCTTTTAA CATCGTATTT ATTTTTCATA TCGGCCACTC TCCCTTAAAA AGCTCACAAAT	1620
AAAATTTTAA ATTTCTATAC AACAATCCGA GAGTAGTCTC ACAATTTGAA CATTTCACAT	1680
CACTCTTAAT ATATAAAAAA TGAATTAATC AGAAACCTCT GACTAAGATT TCCTAATTAA	1740
TTCACTTTCT ATATCATAGT AAGGAATTCT ATTATCCCTA ATTGAAAATT GAAATTTTAT	1800
GTTTTATATA TTAACAATTA TCGGGATTGT AAATCTTGTC TAACAAAATG GCAAGTGCTA	1860
CTATGTGCCC CAGAAGGCGA TGCAACGCTA TTTTGAATTG AAAGAGCATA ATCATCCATA	1920
TCATTTAAGT CACGGATTAG CAATGCTTCC TTCTCTCTC CGACAATTCC AAATTTTCTA	1980
ATTACCTTTT CAGGATTATC AAAAAATTCT CCAACAACCT CCATATTTCC TTGAAGTTCA	2040
TTCAAGAAAG CTTTCATTTG ACTACTCATT ATATAGCTCC TTTTCTATTA CTTTATTTGG	2100
AATCAAACT TACTTGTAACA TTGGAACAC CTCTATTTCTA CGCTTTTCTA TTGCTGCATG	2160
ACACTTTCAA AATCAAATTG CTAATAATAA TTTTTTAAAG CTTAATTTAG ATTAAATTAC	2220
ATATATCTCA AAAAATTGTT TTGAAATTAG TAAATTAAAA TAGGTTTCTG TACTTATAGG	2280
AACTAGTTAT AAAAATTCTG CCCATCATAA AATATCTATT TAAGTAAAC AAAAATTTTA	2340
TAATTTTTTG ATTTTAAAGT GACTATAATC TCCTATCTAT AAATACCATT CGCAGGACCT	2400
GGATCAATCC CTCTAGCCAT CTTATGAACT TGAGTTCCTC CAGACAGTCC CGG	2453

(2) INFORMATION FOR SEQ ID NO: 317:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1049 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear



1345

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 317:

CCAATTTGAA GGCTCTAAAA CAATGGAAAA GTGCTACACA GATGTGACAG AATTTGCCAT	60
TCCAGCAGTA CTCAAAAAC TTAATTATCA CCAGTTTATAG ATGGCTTTAA CAGCGAAATT	120
ATTGCTTTTA ATCTTTCTTG TTCGCCTAAT TTAGAATAAG TACAAACAAT GTTGGAACAG	180
GCATTCAAAG AGAAGCACTA TGAGAATACG ATTCTCCATA GTGACCAAGG CTGGCAATAC	240
CAACACGATT CTTATCATCG GTTCCTAGAG AGTAAGGGAA TTCAAGCATC CATGTCACGC	300
AAGGGCAACA GCCCAGACAA CGGCATGATG GAATCTTTCT TTGGCATTTC GAAATCGGAG	360
ATGTTTTATG GTTATGAGAA GAACTTTAGA TCTTTAGAAA ACCTTGAACA AGCTATTGTG	420
GACTACATTG ATTATTACAA CAACAAGAGA ATTAAGGTAA AGCTAAAAGG ACTTAGCCCT	480
GTGCAATACA GAACTAAATC CTTGGGATAA ATTAATTGTC TAACTTTTGG GGTGCAGTAC	540
ATTTTTGGTA TATATAAAAT TTGTAGGAGC TATATCTACA ATTTTATATT CCCAGTTTAT	600
GGATGTAAC TACTATATTC ACAATGTTAT CCAGTGTTTT TTCTCTAATA TTTAAGGAGT	660
GTCTGTTC TCGAATAAAT TCTTCAAAGT TTAACCCGTC AACTTGTTCC TGAACAAGAA	720
AATAATCATC CACGATATAA AATTCATCAG TTAAATTAGT AGTATAACTT TTATCGGCTA	780
ATTTTTTTAG CATGTGAGCT TCATTTTTTA TATCATCAAG AGCTGTCCAT TCTCTTCAG	840
CATCATAATT CACAAAAGGT CTGACTGCT TGATGATTAC TTTTGCCCG TCCGATTTTC	900
TAATTGCCCG ATAAACATT CCTTTATTG ATCTCTTAAT AATTTTTTCC ATTTGTATT	960
TATTTATTGC AGAGTCCTTA CTGAAACTT CACATGTGGT TTGAAAATAA ATCCTTTTTT	1020
CTTCTCTGA AAATAAATCC ATTTCCGG	1049

## (2) INFORMATION FOR SEQ ID NO: 318:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 776 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 318:

TTAGTTGGTT AGAATCAGAA AATCGCCGAA GTGGTTATTT ATTTTGAAT AAATTTAACG	60
AACCAATTAC AGCAAGAGGA GTTGCTCAAC AGTTAAAAA TTATGCTGAT AAATACAAAA	120
TGAATCCTAA AGTAATTAC CCTATTCTT TTAGGCATTT ATTTGCTAAG AATTTTTTAG	180

1346

CGAAGTATAA TGATATTGCC TTGCTTGCAG ATTTGATGGG ACACGAAAGT ATAGAACTA	240
CTCGAATTTA TCTAAGGAAA ACAGCTACTG AACAACAAAA TATTGTAGAT AAAATTGTTA	300
ATTGGTAAAA AATAACAGGT GGTCAAAGT ACTACCTGCT ATTTTGTGA TTATGGCTCT	360
TATTATGGGA ATATACCTAT GAATTGGGT GTTATAAAAA TAAAAGATAT TTTTCAATA	420
AATACAGGTC TTTCTTACAA GAAGGGCGAT TTAAGCATTATAATAAAGG TGTTAGAATT	480
ATACGTGGTG GTAATATTAA GCCTTTAGAA TTTTCTCTGT TGGATAATGA TTAATACATT	540
GATACACAAT TCATCTCCTC TGAGCAAGTT TATTTAAAAC ATAATCAGCT AATAACACCT	600
GTATCAACCT CTTTGAACA TATTGGAAG TTTGCAAGAA TCGAGAAAGA CTATGATGGT	660
GTGTGGCTG GTGGATGTAT TTTCCAATTA ACACCATTCG AAAGTGCAGA GATGATGTCA	720
AAATGTCTAT TATGTAACTT GTCCTCTCCG TTATTTTATA ACAAATTGAA AGCAAT	776

(2) INFORMATION FOR SEQ ID NO: 319:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 658 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 319:

TGCAATGCGG CGGCTGCATA CGCTTGATCC GGCTACCTGC CCATTCGACC ACCAAGCGAA	60
ACATCGCATC GAGCGAGCAC GTAATCGGAT GGAAGCCGGT CTTGTGATC AGGATGATCT	120
GGACGAAGAG CATCAGGGGC TCGCGCCACC GAACTGTTCTG CCAGGCTCAA GGCGCGCATG	180
CCCACGGCG AGGATCTCGT CGTGACCCAT GGCGATGCCT GCTTGCCGAA TATCATGGTG	240
GAAATGGCC GCTTTTCTGG ATTCATCGAC TGTGGCCGGC TGGGTGTGGC GGACCGCTAT	300
CAGGACATAG CGTTGGCTAC CCGTGATATT GCTGAAGAGC TTGGCGGCGA ATGGGCTGAC	360
CGCTCCTCG TGCTTTACGG TATCGCCGCT CCCGATTGCG AGCGCATCGC CTTCTATCCG	420
CTTCTTGACG AGTTCTTCTG AGCGGGAATC TGGGTTCTGA TGTCGACAGC CCGCCTAATG	480
AGCGGGCTTT TTTTCTCTGA GGCTGGACGA CCTCGCGGAG TTCTACCGGC AGTGCAAATC	540
CGTCGGCATC CAGGAAACCA GCAGCGGCTA TCCGCGCATC CATGCCCCCG AACTGCAGGA	600
GTGGGGAGGC ACGATGGCCG CTTTGGTCCC GGATCAATTC GCGCGACCGG ATCGATCC	658

(2) INFORMATION FOR SEQ ID NO: 320:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1475 base pairs
  - (B) TYPE: nucleic acid

1347

(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 320:

CCGGCTTAAT TTTTAGAAAA CGTGGGCAGG GAACCTTTGT TCTCTCTCGT GGCAGCTCAA	60
AAAGAAAATT AATCGTTCCA GAAAGAGATA TCCGGGGACT GACAAAAATA TCTGAAGATC	120
CTCATTCTAC AATTGACTCG AGGATTATTC ACTTCAAATT AGAATTGCA AATGAATTTT	180
<hr/>	
TAGCAGAAAA ACTACAGGTC GCTTTGCAGA GTCCAGTTTA TAATATTTAC CGCTGCGTA	240
TTATTGACGG TAAACCTTAT GTTCTGGAAC AAACCTTATAT GAGTACCGAT GTTATTCCAG	300
GTATTACTGA AGATATTTTA CAAAAATCGA TTTACAATTA CATTGAAGGA AAGTTAGGAT	360
TGCATATTGC CAGTGCTACA AAAATCTTAC GAGCTTCTTC TAGTTCAGAA AATGAGCAAC	420
ATTACTTGCA GTCCTTCCA ACGGAACCGG TATTTGAAGT AGAACAAGTG GCTTATTTGG	480
ATAACGGAAC TCCGTTTGAG TACTCGATTA GTCGTCATCG CTATGATTTA TTTGAATTTA	540
ATTCTTTTGC ATTACGACAT TCCTCCTAGG AGAAAATGTG AAAATGAAGC CAATCTTTTA	600
CAGACTCTAG TTTAAGAAAA ATTTAAAACA GGGCAAGAAG GTCCCATCTA TGCTTAAATG	660
GTTTCTCTTT TCTAAATAAG ATGGCTTTAA AAGAGTGATC GTTGATCCA TCATGTTGAA	720
AAATATCTTC GTATAGCTTA TAGAGTAGGT ACTGAAATG TTCACCTGAT CTACTTCTTA	780
TAGTTATTTA GTTTTAAATA GTGTTTCAAA CATTCTTACA CTGACGAGAA GTTTTGAAGT	840
CTTTTCTTGT AACACATATA GTATACTGTG GTTAGAATAG TAGACTGTGA CTTCTAACAA	900
ATTGCTAGAA ATGAATTTCA ATCTCCCAAT TTATTTGTTT ATATCTTCTT TTAATATATT	960
AAATAAATTC TAAATCATAA TCATTTAAAA AAATTTTATT TTTTATTTT CATTACGAAT	1020
AATATAGATG AAGGGGAAAG AGTATGAAAA CAGAACTGTT TCTTTTGCTA TTAGTTCAAA	1080
AGGAGAAAAA ATGAAAGTAG AAAATATTTT GTATAGGGTG GATCATCGTA AATTGTTTGA	1140
TAATATTTCT TTTGATACTT CGAGTTCAGA CGTGACATTA ATTACTGGTA AAAATGGTAC	1200
AGGAAAGTCA ACTTTACTAT AGTAGATTGA AACTAGAATA GTACACATCT ACTTCTAAAA	1260
TATTGTTAGA AATCGATTTG ACTATCCTGA TCTATTTGTC CTGTTCTTAT TTCATTTTCA	1320
TATATCTCAA ATTGAGTATG ACGAAGTGCG CTCCCATGTC CTGGGAACGC ACTTTCTTCA	1380
TATTTTTCAT ATTCTTGAAT CCATCGATAA AGACTATTGG GATGAATTTT TAAAGTTGAA	1440
CTAATCATTT TTACAGGATG AGATTTACAG CAGAG	1475

(2) INFORMATION FOR SEQ ID NO: 321:

1348

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 560 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 321:

GAAATATATA TACTTCATCT TAATACTGAG CAAGCTAAAC TTAGCATTTC ATGCCCTCAT	60
ATGGGATGTT CTTTGACTAA ATAATATGAT TATCGAGATA TATCTGGATA AATGAACTAA	120
TAAGTCTGAC GCGTAGACTT ATCAAAGTCA TTGGCATACA CCACTATGAA CTCGTTGGTC	180
TGTTCAAATC CCAACACATT ACCTGAGAAG AAAGTTGCAA TGTTGTTTTT GGTGCGGGTT	240
TGAATTTAAA AAATTTGTTA TGTAAGTACCT AATCTAAGGA ATTAGAACAA TGCCTCTAAT	300
TTTTCTTTAA TAACTGAAA CATTGATGAT TCTGGCTGTA TTTTGAAC AGCTCTCTT	360
TGCTCCTGGA AAATATCTTC AGAAGTTATA TTCTCTATTC CTAACGCTAC TTGAGTTTTT	420
TTTCTAAAAT ATTCTTTTCC GTTGCCATCT TTAGAAAAAT CATAACCTTC CCTATCTACG	480
CTGTTACACA AATTAGCTAA AAAAFACTCT GGGGTTGGGA AAGGAAGATA AGAAaCGTAT	540
TTAGCCCATATA ATCTATAAAG	560

## (2) INFORMATION FOR SEQ ID NO: 322:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 643 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 322:

CCGCCCCGCC ACCGCTGCCT ATCCTCGGGA GAGGGTCACC TGGAGTGAAC CTAGAACGAT	60
AGACACGGTG CCGTACGACC TCGTACTACT TTCGCCGACG GCCTCGTCCG TTGTCATCCA	120
CGAACTGATC GGACATGGGT GCGAACACTT CAGAGAAAAA ATCGTTGGAC TCGGTGTCCG	180
GCCTGAGGAA CTACGGGTGG TGGCTTTTCC GAAGAACGGC TCCGGGTTTG ATGACGAGGG	240
TACACCCTCC GAAGAGATTG TACTTGTGGA GAACGGCATT GTGAGGCACG CTGTCAGGGA	300
TCGGGGGACT GGAGGAATGG CGCCTTTTTC CGGTTTGACC AAAGTGGCAT CACATGGTGT	360
CAAACCTGGC TCAAGATGTA CGCATCTCAA GGCGGAAGGG GAATCGTCAC AGGAAGGAGT	420
TACCGGAGTA CCCGCCGAAC GCACCGTTTG GATAGAGCAT TTTTCTGCAG CGAACTACCA	480
TTCAGGTCGA GCCTTTTTC GGTCTGGCCT TGCCTGGTA GGCAGCCGAG AAGAACTCTT	540

1349

ATATCCCTTA ATGCCTTTCA CCATGTCAAT TGATATCTAC GAACTGGCCA GCTTATTGTG 600  
 GCATTTAGAC GGTCAAACGG AACGAGCAGC TAGGGTACTG TGC 643

(2) INFORMATION FOR SEQ ID NO: 323:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 780 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 323:

GGTACCCACT CATTCTTGAT GAATTGTGAA CAGTTGCCCT TGGGTCGTTT TCGAGTTGA 60  
 AGTCAAGAAG AGGAAAAAAA CAAAAGGAG AAATACTCAT GGCAGTAATT TCAATGAAAC 120  
 AACTTCTTGA GGCTGGTGTA CACTTTGGTC ACCAACTCG TCGCTGGAAT CCTAAGATGG 180  
 CTAAGTACAT CTTTACTGAA CGTAACGGAA TCCACGTTAT CGACTTGCAA CAACTGTAA 240  
 AATACGCTGA CCAAGCATAC GACTTCATGC GTGATGCAGC AGCTAACGAT GCAGTTGTAT 300  
 TGTTCGTTGG TACTAAGAAA CAAGCAGCTG ATGCAGTTGC TGAAGAAGCA GTACGTTTCA 360  
 GTCAATACTT CATCAACCAC CGTTGGTTGG GTGGAAGTCT TACAACTGG GGAACAATCC 420  
 AAAACGTAT CGCTCGTTTG AAAGAAATTA AACGTATGGA AGAAGATGGA ACTTTCGAAG 480  
 TTCTTCCTAA GAAAGAAGTT GCACTTCTTA ACAAACAACG TCGCGTCTT GAAAAATTCT 540  
 TGGGCGGTAT CGAAGATATG CCTCGTATCC CAGATGTGAT GTACGTATG ACCCAGATAA 600  
 AGAGCAAATC GCTGTTAAAG AAGCTAAAAA ATTGGGAATC CCAGTTGTAG CGATGGTTGA 660  
 CACCAATACT GATCCAGATG ATATCGATGT AATCATCCCA GCTAACGATG ACGCTATCCG 720  
 TGCTGTAAA TTGATCACAG CTAAATTGGC TGACGCTATT ATCGAAGGAC GTCAAGGTGT 780

(2) INFORMATION FOR SEQ ID NO: 324:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 624 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 324:

CGGGAAAAAT CAGATTGTGG GTTCAGATAT CGAATTAGCC AAGGCTATCG CAACAAAAT 60  
 AGGTGTCGAA TTGGAAGTAT CTCCCATGAG TTTTGATAAT GTACTGGCTA GTGTTCAATC 120

1350

AGGAAAAGCC GACCTTGCCA TATCAGGTGT TTCTAAGACA GATGAACGGA GCAAGGTGTT	180
TGACTTTTCC ATTCCCTACT ATACTGCAAA AAATAAACTC ATTGTCAAAA AATCTGACTT	240
GACTACTTAT CAGTCTGTAA ACGACTTGCG GCAGAAAAAG GTTGGAGCGC AGAAAGGTTT	300
GATTCAAGAG ACGATGGCGA AAGATTTGCT ACAAAATTCT TCCCTCGTAT CTCTGCCTAA	360
AAATGGGAAT TTAATCACAG ATTTAAAATC AGGACAAGTG GATGCCGTTA TCTTTGAAGA	420
ACCTGTTTCC AAGGGATTTG TGGAAAATAA TCCTGATTTA GCAATCGCAG ACCTCAATTT	480
TGAAAAAGAG CAAGATGATT CCTACGCGGT AGCCATgAAA AAAGATAGCA AGAAATTGAA	540
AGAGGCAGTT CGATAAAACC ATTCAAAAGT TGAAGGAGTC TGGGGAATTA GACAAACTCA	600
TTGAGGAAGC CTTATAAGCA TCCA	624

(2) INFORMATION FOR SEQ ID NO: 325:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1237 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 325:

TCTTATGAAG CCGAAGCGTG ATTTATGGCG GATAGGTTTG GTCTGCAGAA AGTGACAAAT	60
CTAGTGCCAT CAGCGTATAT GGAATCTnTG GCTGAGAAAC AGTCCCGGGG TGAAGTACT	120
TATGAGCAGG TTTATGAGGA TGCAACGGCT TATCATCATA CCATTGATGC GAGTACAGAG	180
GAGGCAGACT TGGTTTCTCT ACGTATTGTA GAACTATTGT CTCGAAGAGG CTTTAGCTTC	240
AGTCCTGCGA TCTTACTTGC TATTCATAAG GAGTTGTTTC AAGATATATT TGAACCTCG	300
ATTCCGGTAG GTCAATTTTCG TCAGACTAAT ATCACAAAGA ATGAACCTGT TTTGAATGGT	360
GAAAGTGTG TGTACTCTGA TTAATCCATG ATTCAAATGA CCTTGGATTA TGATTTTAAT	420
CAGGAAAAAC AAGTTGCATA TGCGACACTA ACCCAGGCGG ATATGGTTAA AAAATCCAG	480
CATTTTATTT CAGGAATCTG GCAGATTCAT CCATTTGCGG AAGGAAACAC TCGGACGGTA	540
ACGGTATTTT TGATTCAGTA TCTTCGTGAG TTTGGTTTTG ATATTGATAA TACACCATT	600
CAGCAACATT CCAAGTATTT TCGTGATGCC TTAGTGTTAG ATAATGCAAA GATTTTACAG	660
CGACGTCCTG AGTTTTTAAC AGCTTTTTTT GAAAATCTCT TGCTCGGTGG TCAAAATGAT	720
TTGTCTTCAG AAAAAATGTA TCTAGATTTA GACCTCGATC TTTTATAATC CTAATACTGA	780
GTAAACATTG AATTTTAGGA AAAAAATGAAG TAAATATTCT CACAAGAAAA CGTATATCAT	840
CAAAGTTTGG CTCTTTGTCA ATTGTAGTGG GTTGAAGAAA AGCTAAGTTC GAGAAAGGGC	900

1351

AAATTTCCGGC CTTTCCTTTT TGATGTTTCAG AGCGATAAAA ATCCGGTTTT TTGAAGTTTT	960
CAAAGTTTTCG AAAACCAAAG GCATTGCGCT TGATAAGTTT GATGAGATTA TTGGGCGCTT	1020
CCAGTTTGGC ATTAGAATAG TGTAGTTGAA GGGCGTTGAT AACCTTTTCT TTATCTTTGA	1080
GGAAGGGTTT AAAGACAGTC TGA AAAATAG GATGAACCTG CTTAAGATTG TCCTCGATAA	1140
GTTCGAAAAA TTTCTCCGGG TCCTTATTCT GAAAGTGAAA CAGCAAGAGT TTGAAGAGCC	1200
GATAGTGATG TATCAAGTCT TGTGAATAGC TCAAAAG	1237

(2) INFORMATION FOR SEQ ID NO: 326:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 461 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 326:

TTTGATTTTT CTGAATTAGA AGAGATTGAA TTGCCTGCAT CTCTAGAATA TATTGGAACA	60
AGTGCATTTT CTTT TAGTCA AAAATTGAAA AAGCTAACCT TTTCTCAAG TTCAAATTA	120
GAATTAATAT CACATGAGGC TTTTGCTAAT TTATCAAAT TAGAGAACT AACATTACCA	180
AAATCGGTTA AACATTAGG AAGTAATCTA TTTAGACTCA CTACTAGCTT AAAACATGTT	240
GATGTTGAAG AAGGAAATGA ATCGTTTGCC TCAGTTGATG GTGTTTTGTT TTCAAAGAT	300
AAAACCCAAT TAATTTATTA TCCAAGTCAA AAAATGACG AAAGTTATAA AACGCCTAAG	360
GAGACAAAAG AACTTGCAATC ATATTCGTTT AATAAAAATT CTTACTTGAA AAAACTCGAA	420
TTGAATGAAG GTTTAGAAAA AATCGGTACT TTTGCATTTG C	461

(2) INFORMATION FOR SEQ ID NO: 327:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1436 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 327:

TAACATTTAG GTACCTCTTC TTAACAAAGT TCAATAGTAA CAATTAATAT TTAAACAAT	60
ATATCAAACA TCAATGACTA GAATACTTGC ATCATCCTTC TTTCCATAGA TTGGATCAAT	120
AGCAGAAGAA TTAAATCTCA TCTTAATTAA CTCTTCAAAA GTTTTATTTT GATTATTTTG	180

1352

ATAGAATTCA TAAAAGCCAT CGCTCATTAA AACAAATTTGT TCACTAGTAA CATCTATTTG	240
ATTAATAATA GCATGGTCTA AAAATCTCTC ATCCAACGAA CCTATCCAGT ACCCACTCGG	300
TTGATTAGAT AATTTTCTGA TTTTTGTAA AATAATTTT TTATTTAAAA CACTATTTGT	360
ACCAATTGAA TCTTTTATCT CATTTTCCCC TTTTCAAAT AAGTTATCTA CTCTATGATC	420
AGTTATTTCC ATTTCTGTTA CTAACATGAC GCAGTCACCT AGCATCATAT ACTCCAACCT	480
TTTTTCTGAA AGTTTAGCAA ATATTGGTAA GCGATAATAT AGTATATTGA AACTAGAATA	540
GTACACCTCT ACTTCTAAAA CATTTGTTAGA AATCGATTG ACTGTCCTGA TTGATTTGTC	600
CTATTATTAT TTCATTTTAC TATACTCTGT TAATTTATAT GAGTTTAAAC CGATTTCATC	660
TTTAACCTCG AGTAAAGCAG TTTCAAATAT TTGTTAAGA GTTTTGTATT CTTTACAATT	720
AACCGACAAA CTTTCTGATA AAATATGTAC AACTTCTGAG ACTGAATAAC CTATCTCCTC	780
TTTAGAATTA TATAAATCTG TAGCTCCACC AATAATCCAA AAATACTGAT TTTGTGAACC	840
TACAATATCC TCATTTTCTA CGGAACCTCC TTGTATCGAA CAAATTTTAT TTATCTTTAC	900
CATAATACTT CAACCTTTT AGTGTCAAAA GTAAACCAAT TCCTGTCACT GTTAAGAATA	960
GTTCATAAT CTTATTCGAA CCAGTCTTTG GTAATTTTGT TTTKACATCT ACTATCTCTT	1020
TAGATTTATT AATATGATTT TCAGTTTCTC TGCCATCTCC AACTATTTTA TAGTTTACTT	1080
CTTCTGTCTT ATTATCTTGT TTATGTGCGA TCTGTCACTT CATTTGTCTA TTATCTTTAC	1140
TTGAGTTAAA CTCTCCGTTT TTTCTGTTAC TATCAATTAC ATTATTTGAA TTAGATTGTT	1200
TTTCTCTTT GTTTTTTCTT TTTTCTGTTT TATCACTTAA ATTATTTGTT ACAATTTTGT	1260
AAAGCCCATT CTCCGTTACA ATATTGAAAT TACCATCGCT ATCACGTATA ACAGGTTCTT	1320
TCCCATTTGC ATTAGATTTG ATGAATGATA TATACTTACC GGATAAATTA TAAAATTGGT	1380
TATTTAAAAC GGTATTTTA CCCTTTGAAT COTCAATAAC AATTCCTTCT TTACCC	1436

(2) INFORMATION FOR SEQ ID NO: 328:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 646 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 328:

CCGGCAGACA GGAGAAGGTG TAAATATCA ATCTCAAATG GTTCGTCAAT GGTTCCTGAT	60
ACGTATTTTC CGTCTTTCTT CCGTTGCTTG ACACACTCTG TGAGGAGATA TTCGATTTGC	120
CCATTGACTG AACGAAAGTC GTCTTCTGCC CATGATGCCA GTGCAGCGTA TAACTTTGTT	180



1353

GAGAGTCGAA GGGGGATCTG CTTTTTTTGA GCTTCAGCCA TCTTTAGTAA AGGCTTCCTG 240  
 TGTGACAAT TGGTTGTGCA TCATGATTGC CACAAAGAAC GACAAGGAGA TTTGAAACCA 300  
 TGGCAGCTTT TCGTTCCTCG TCAAGTTCTA CCAATTCCCC TTCATTGAGC CGTCTAGTG 360  
 CCATTTCAAC CATTCTTACA GCACCATCTA CAATCATCTT CCGTGCATCA ATAATGGCAG 420  
 ATGCTTGTG GCGTTGAAGC ATAACGGCAG CAATTTCTGG AGCATAAGCT AGGTAAGTGA 480  
 TACGTGCTTC AAGGATTTCC AAGCCAGCAT CCTCAACACG ACTTTGGATT TCTTCACGAA 540  
 TACGGGTAGC AACAATTTCC CTAGAGCCAC GGAGACTACC TTCATCTGCG TGCCCATCAC 600  
 CCGGAGTATC CACATTAGGA GACACATCGT AAGGATAGAT GCGGAC 646

(2) INFORMATION FOR SEQ ID NO: 329:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 1653 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 329:

GTTGCAGGTG CAGTAGGTGT TACTTCAGAT ACATTTGAAC GTGCAGAGGC TCTTTTGTAG 60  
 GCAGGAGCGG ATGCGATTGT TATTGATACT GCACATGGTC ATTCTGCAGG TGTCTGCGT 120  
 AAAATGCGG AGATTGCTGC TCATTTCCCA GATCGGACTT TGATTGCTGG AAATATTGCT 180  
 ACTGCTGAAG GTGCACGTGC CCTTTATGAA GCGGGGTGTAG ACGTTGTAA GGTGGTATT 240  
 GGACCAGGTT CTATCTGTAC TACTCGTGTG ATTGCTGGTG TTGGTGTTC GCAAGTAACA 300  
 GCTATCTACG ATGCTGCAGC TGTGCGCGC GAATATGGTA AAACGATTAT TGCTGACGGT 360  
 GGGATCAAGT ATTCTGGAGA TATTGTAAAA GCACTTGCTG CAGGTGGAAA TGCTGTTATG 420  
 CTTGGATCTA TGTGTGCTGG AACTGATGAA GCTCCAGGCG AAACGAAAT CTCCAAGGA 480  
 CGTAAATTCA AGACTTACCG TGGTATGGGA TCAATTGCTG CTATGAAGAA AGGTCAAGC 540  
 GACCGTTATT TCCAAGGTTG TGTCAATGAA GCAAACAAGC TTGTTCCAGA AGGAATTGAA 600  
 GGTCGTGTTG CTTATAAAGG AGCGGCAGCT GATATTGTTT TCCAAATGAT TGGTGGTATT 660  
 CGCTCTGGTA TGGGTTACTG TGGTGCAGCT AACCTTAAAG AACTACACGA TAATGCTCAA 720  
 TTTATTGAAA TGTCTGGTGC TGGTTTGAAG GAAAGCCATC CTCATGATGT GCAAATTACT 780  
 AATGAGGCAC CAAATTATTC TATGTAAAAA ACAATGAAAA GAACTCCAGT GAAACAGGA 840  
 GTTCTTTTAC AATGTTGTCA ATTTCCATTT ACAGCAGCTT TACCATCCTG AATAGTGAAG 900

1354

ATACTTAGAT TTTCTGGCAG ATTTTGAAGA TGGTCTAAGC TTGTTGTTGT GATAAAGGTT	960
TGGATTGATT GAGAAATCGT TTCTAATAAT TTAACTGTC TAGTGTGTC AAGTTCACTC	1020
ATCACATCGT CAAGCAGTAA TATAGGAGAT TCTGTGGTAA TGCTTTCCAT TAATTCGATT	1080
TCTGCTAATT TTATCGAGAG GACGAGACTA CGATGTTGAC CTTGGCTTCC GAACTAGCA	1140
TCCATCCCAT TTATATAAAA AGAAATGTCA TCTCGATGAG GACCGACACC AGTATTCTTT	1200
TTAAATAAAT CTCTGGATCT ACTTTTTTCT AAAGCAATTT TGAAAGATTC GGATAAGTTT	1260
TGTTTGTGAG TTATATTGAC AGAAGATTGA TAGGATATTG ACAACTCTTC GATCTGATTA	1320
GAGAGTTCAA AATGTTTCTT ACGCCCAAAT GATTCTAGTT TTTTATGAA ATCTAAGCGG	1380
TGATTCATTA CACGACATCC ATAATCAACT AGCTGATCAT CTAACACAGA AAGGAATGTT	1440
TCATCTATTT TTTGAGCTGA TTTTAGGTAA GTGTTTCTTT GCTTTAGGAT GTGGTTATAA	1500
TTGGTTAAGT CAGATAAATA GATTGGCTTA ATTTGCCCAA GTTCCATATC AATGAATTTT	1560
CGTCGAATCG AAGGTGCTCC TTTAATTAGT TGTAATCTT CAGGAGCAAA TAAGACAACA	1620
TTCATGTGTC CTACATAATC TGAAAGGCGT GCC	1653

## (2) INFORMATION FOR SEQ ID NO: 330:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1340 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 330:

GAAACACTGT ATTTCAAAGC ATTTTGTGTT AGTTTAAAT TACTCCCATT CTCTTTTCC	60
AAACGTACAA TATATCCAAA ACCATTCAAA ATACTAGATT CTATTTTTTA TAATATCACT	120
AAATCCACCT AATTATAGGA CGTTTTGAGA TTTTGTAGTCC CAGTCCCAGT ACCGGAGAAA	180
TATTGTTTTA ATATAATATC TCTTTTGTG TTCTAAGCTC TTAAAAGCAA AAGAACAAGT	240
AAAGAGTCAA GACAAGGATA AAAAGTCCAT ATTAGGGCAA ATAAAAGCT TTAAGACAGA	300
TGACAAATCT AAGTCAAATA AGAAAGACCA TAGCAAAGGT GCAGAGAGAT AAATATTGGC	360
GGTCTTCGGA CTGCCTTTAT TTTTATATCC ATTTTCAAA TCAAATTTAT TCAGACTATA	420
TATGCACATA TACACTTAAA TTCATATAAA AACATGGCTT GTAAAAAATT ACTTTAATCA	480
CAATAATCGC ATTTAAAATT GTGATGTTTG CAAGCTAAAT TACGGACTTC ACTTGGAAGT	540
TTCCCTTGT ATCTTTTATA ATAGATAGAA AATTGCTGG CAGATGAATA TCCAACAGAT	600
TCTGCTATCT CTTTATAGG TAGTTCAGTG TTTAAAAGAA GAGTTTCAGC TACATTCATT	660

1355

CTTTTCTTT GAGTGACTC TGTAATGCTT TGACAATATT TTTCCTTAAA TAAATTTT	720
AATTTAGTAC CACTCATTTT AGATATTTT TCAAGCGTGC CTGATTAC ATTGCTTGCA	780
AAATGATCAT CTAAGAATCT TGCTACATCT TCAAGTGCTT TATCATCATC AATTCAATT	840
TTATATTTT TTCTATTTAA GTATGTGTCA ATTACTATAC TTATCCATTC ATTGCTTT	900
GCTTTAAAGA AAAAATCAGC GGCAGGAGCG TCCATCTTAC AATTTAATAT TTCCATTGCC	960
ACTCTTCTA AGGCCTTTGT AAGTATTATT TGATTGCGTT GAAGCAAGGT TGAATAAAAA	1020
GATTCTGGAT TAATGTTAAT AGATGCTAAA TGTTTTTCTA TTAGCTCTTT TTTAAAACCM	1080
ATGGAACAG CAAGATAACA ACAATTCTCG TGTAATAAAA AAACAAAATT ATCTTTTATA	1140
TTATCAAAAT CAAAAGTACA TAGAGAGTTT GCGGTAATAG TTTGATACGG ATTAACTTT	1200
TCTCCGTTG CACTGACAAT GAACTTGAA TAAATTGAAA CATAGTCTGA CATACTATAA	1260
GTGCTATTTT GAACTACTTC CTCTTTGATA TAAAAATCAT GTATATCGAT AATGAAGATG	1320
CCTCCTTCAT AAAACCGGTA	1340

(2) INFORMATION FOR SEQ ID NO: 331:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 607 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 331:

TATGTTCTG ATGAGTTTTT AAGTAGGAAA AACGTGCTAA CCTCTCAGAT TTGGAACCT	60
GTAAGAGAAA CTCTTTTTC ACCCGTAGTA GTTGATAATG GGTGATCC GGCCTTATTT	120
GAAATGAGA AAAACAATT GCTAGCAAGT TTAGCAGCTG ATATGGATGA TTCTTTTAT	180
TTGACATA AAGAATTGGA TAAATTGTTT TTTCATGATG AACGTCTTCA ATTGGAATAT	240
AGTGATTAC GAAATCGTAT TTAGCTGAA ACTCCACAAA GTTCTTATTC TTGTTCCAA	300
GAATTTTATG CCAATGATCG AATAGATTC TTTTCCTAG GTGATTTTAA TGAGGTTGAA	360
ATTCAAAATG TATTAGAATC ATTTGGCTTT AAAGGTCGAA AAGGAGATGT GAAGGTTTCC	420
TATTGTCAAC CTATTCTAA TATCCTTCAG GAAGGTATGG TTCGGAAGAA TGTGGGACAA	480
TCCATTTTGG AATTAGGTTA TCATTACTGT TCTAAATATG GTGATGAGCA ACATTTACCC	540
ATGGATTGAA TGAATGTTT ACTTGGTGA TTTGCTCACT CTAAGCTCTT TACAAATGTC	600
CGGAAA	607

1356

## (2) INFORMATION FOR SEQ ID NO: 332:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 900 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 332:

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TTAAAATACC GAATTTTGGT TTGTCCTCTA TTTCAACATT GTGAATCGCC TCAGGCAGAG      60
AACCGATACT AAAGATATAA CCAAATAGT  TGTCATTTGC TTTACCGATA TCAATCTTAT      120
TGGTTAAATC AAAATCCAGT TCGTCAATTG CGCCATCGAT GTCTTGATTG ATTTCCAAAA      180
GTTTGTGAAT GAGGTTACCC GTACCGCCTG GGATAATCCC TAACCTAGGA ATGTAGTCTC      240
TCTCATCAAT ACCTGAAATG ACTTCATTGA CAGTTCCATC TCCACCAAAC ACAACCACTG      300
CATCATACTG CTCACGAGAA GCTTCTTCAG CAAATGTGT TGCATCCAGC GCTTTTTCGG      360
TAATTTTGGT TTCAACATAT TCAAAGTATT CTTTTCCTTT ATTCTCCAGC TTTTCTTTGT      420
AATCCAAAGC CTTCTCGCCA CCAGAAGTAG GTTTGATAAT TACCATTGCT TTTTTCATTG      480
ATTTTATCCT TAATTTTAAA CAGAAATGTT TACATTTCTG CGTATGCAAG TAAATGTAAT      540
CCTATTATAC AATGAAAATA CAGAAAAGAG AAATCTGACG TACTGGAGAT TAATACGCTT      600
TTATTCTATT TTCCCATCGC CTAACATCAT CCTTTAAGGG TTCATCCAAG TAAGAATAGG      660
CCTTATCCTT GATCCAATCA GGAATACCGT AAGCTGCCTC TGCTAWGCTA CAAGTGATTG      720
CTGCGAGAGT ATCACTGTCT CCACCAAGTG AGATGGCATT TCTTATCGCA TCTTCGAAGT      780
CTCTACTTTC AAGAAAGGCG ATAATGGCTT GAGGGACAGT TTCCTGACAT GTTTCGTTAA      840
AACGATAGTT AGGACGGATT TCATCTAAAG TTTGAGATAG ATTGTAATCG TATTCTTTTT      900

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## (2) INFORMATION FOR SEQ ID NO: 333:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 533 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 333:

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CCTTTCTGGC ACACTGGTCT TGAATACGG CAAAACCTCT GAAAATATCT ATGCTGGAAT      60
GGACGAGGAA TACCGTCGTT ATCAGCCTGC CATCATCACT TGGTACGAAA CAGCCAAACA      120
TGCTTTTGAT CGCGGACAGA TTGGCAAAT ATGGGTGGAA TCGAAAACGA CCTCAAGGGC      180

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1357

GGTCTCTACA GCTTTAAATC CAAGTTCAAT CCGACCATG AGGAATTCCG TGGTGAGTTC 240  
AACCTGCCAA CTAATCCTCT TTACCACCTC TCCAATCTGG CCTACACTCT CAGAAAGAAA 300  
CTGCGCAGaA GcATTAAACAG AAAGGAAGCC TATGACCTTT AAACCTTCTCA GCCAAGAAGA 360  
ATTCATCCAG CATACCTCAG CTAGATCCCA ACGCTCTTTT ATGCAGACCG TAGAAATGGC 420  
AGAGCTGCTG AGCAAGCGTG GCTTCAGTAC CCAGTATGTC GGCTACACTG ACCCACAAGG 480  
GAAGGTAGTG GTGTCAGCTG TCCTCTACAG CATGCCTATG ACTGGTGCC \_TTC 533

(2) INFORMATION FOR SEQ ID NO: 334:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 544 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 334:

CCAGCAAACCT AGGAAGCTAG CCGTAGTTGC TCAAAGCACA GCTTTGAGGT TGTAGATAAG 60  
ACTGACGAAG TCATGTACAA AACACTGTTT TGAGGTTGCA GATAGAACTG ACGAAGTCAC 120  
TCAAAACACT GTTTTGAGGT TGCAGATAGA ACTGACGAAG TCACTCAAAA CACTGTTTGT 180  
AGGTTGCAGA TAGAACTGAC GAAGTCanna ACCACACCTA CGGCAAAGTG AATCTGAAGT 240  
GGTTTGAAGA GAGTACAACT TGTCTTTTAG AAAAGGAGCC TATAATGAAA GTCTTTCAGC 300  
ATGTAAATAT CGTGACTTGT GATCAAGATT TCCATGTTTA TCTTGATGGA ATCTTAGCAG 360  
TCAAGGATTC TCAAATCGTC TATGTCGGTC AAGATAAGCC AGCGTTTTTA GAGCAAGCTG 420  
AGCAGATTAT AGACTATCAG GGAGCTTGA TTATGCCTGG TTTGGTCAAT TGTCACACCC 480  
ATTCTGCAAT GACAGGTCTG AGAGGGATCC GAGATGACAG CAATCTCCAT GAATGGCTCA 540  
ATGA 544

(2) INFORMATION FOR SEQ ID NO: 335:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 349 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 335:

CCAGGAACTC AAATGTAAGT AGGGGTCCT TTTTGTATA TTTTCAAAT AACGCCTCTA 60

1158

CACTATTTGT AGCAAATTCA CCAACTACAG TTGTATCTTA GTTAAAATAA GTTAGAATAT	120
GTAAGTGAGT ACCAGATATA CCAAGACATC GTCACCATCT AAGGTATATT CAAAATACAA	180
AAGTTGACCA ACTAGATTTT TGAATATCCT TATATATCCA TTCTTAAAT TGGTTTAAAT	240
AGCGTAGTCT TTAAACTAG TTTTGAGAAT CCAAAAAATC TTCCTACATA TGTAAGAAGA	300
TTTTTTAGTT CAGAATGATT AGATTAGCT AATGGATACC TATCTACC	349

(2) INFORMATION FOR SEQ ID NO: 336:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1206 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 336:

CTCCGATAAC CACACCAGCA ATGGAAATAA TTCCATCGTT AGCATCAAGA ACACCCGCAC	60
GCAGGATATT TAAACGACCT GCAAAATTG AATCAATTTC GTGATTGTT TCTGACGCTA	120
AATTTCAAGT TCAAGTTAGC CATCAAGAAG TCTTCTCTGG GTGACTTGTA GTCCAAGCAT	180
TTTTTAGGAT AGTTGTTAAT CCACTTTTCG ATGAATGCGA CTCTTTGGG AGTCATTTTC	240
TTGGTTCCT TAGGTAACCA TCTACGAATG AGCCTGTTGT GATTCTCATT AGTCCCGGG	300
ATCCTCTAGA GTCGACCTGC AGGCATGCAA GCTTGCCACT GGCCGTCGTT TTACAACGTC	360
GATGACTGGG GAAAACCTG GCGTTACCCA ACTTAATCGC CTGCGAGCAC ATCCCCCTTT	420
CGCCAGCTGG CGTAATAGCG AAGAGGCCCG CACCGATCGC CCTTCCCAAC AGTTGCCGAG	480
CCTGAATGGC GAATGGGGCC TGATGCGGTA TTTTCTCCTT ACGCATCTGT GCGGTATTTT	540
ACACCGCATA TGGTGCACTC TCAGTACAAT CTGCTCTGAT GCCGCATAGT TAAGCCAGCC	600
CCGACACCCG CCAACACCCG CTGACGCGCC CTGACGGGCT TGTCTGCTCC CGGCATCCGC	660
TTACAGACAA GCTGTGACCG TCTCCGGGAG CTGCATGTGT CAGAAATTTT CACCGTCAATC	720
ACCGAAACGC GCGAAACGAA AGGGCCTCGT GATACGCCTA TTTTATAGG TTAATGTCAT	780
GATAAGGATG GTTCTTAGA CGTCAAGTGG CACTTATCGG GGAAATGTGC GCCGAGACCC	840
TATTTGTTTA TTTGTCTAAA TACATTCAAA TATGTATCCG CTCGTGAGAA AATAAACCTG	900
ATAAATGCGT CAATAATATT GAAAAATGAA GAGTATGAGT ATTCTACATT TCCGTGTCCG	960
CCTTATACCC TTTTGTGCGG CATGTTGCCT TCCTGTTTTT GCTCACCAG AAAACGCTGG	1020
TGAAAGTTTA AGATGCTGAA AAATCATTTG GGTGCACAAC TGGGGTTACA TCCAAGTGA	1080
ATCTCCATCA GCAGTTAAGA TCCTCTGACA GTTGATACAG CCGCAAGAAC TATTCCTGAT	1140

1359

GAATGAGCAA CTTTTAAAG TCCTGCGAAT GTTGGGGCGG TAATAATCCC CGTGTTGTAG 1200  
 GCCCGG 1206

## (2) INFORMATION FOR SEQ ID NO: 337:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 813 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 337:

CTGCTCAACT CAGACAGTCA AATTCTGAC TTTACCAAAA GAACCATCAA AAAAGTTGCT 60  
 GAAAAAGGCC ATCAGGTTAT TATTACGACA GGTGCCCCCTT ACCGTATGTC AAAAGATTTT 120  
 TACCGTGAAC TGGGCTTAGA CACTCCTATG ATTAACCTCA ACGGATCCCT TACTCATTTA 180  
 CCAGACCAAG TTTGGGATT TGAAGAGTGT TTGACTGTAG ACAAAAAATA TCTGCTAGAT 240  
 ATGGTTCAAC GTTCAGAGGA CATTCAAGCC GATTTTATCG CTGGAGAATA TCGTAAAAAA 300  
 TTCTACATTA CAAATCCCAA TGAAGAAATT GCCAATCCCA AACTATTTGG TGTAGAAGCT 360  
 TTCCAGCCTG AAGATCAATT CCAGCCTGAA TTGGTGACCA AGGACCCTAA CTGTATCCTC 420  
 TTGCAGACTA GAGCCAGTGA CAAATATTCC TTGGCAAAAG AAATGAACGC CTTCTACCAG 480  
 CATCAACTTT CTATCAATAC CTGGGGAGGT CCGCTCAATA TCCTTGAATG TACCCCAAAA 540  
 GGTGTCAACA AGGCCTTTGC TTGGACTAC TTGCTCAAGA TAATGAATCG TGACAAAAAA 600  
 GATTTGATTG CCTTTGGAGA TGAACACAAT GATACCGAAA TGCTCGCTTT TGCTGGGAAG 660  
 GGTTATGCCA TGA AAAATGC CAATCCAGAG CTA CTCCCTT ATGCAGATGA GCAAATTTCC 720  
 CTTACCAACG ACCAAGATGG GGTGCCCCAA ACCCTACAAG ACTTATTCTT ATAACCTATA 780  
 CTGATACTCA ATGAGGGGCA AAGAGCGAAC TTA 813

## (2) INFORMATION FOR SEQ ID NO: 338:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 683 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 338:

CCTAGATAAA TGATATAATT CTATTATTGT TCGTAAAAAT TAAAAGGAGA TTGATGATGG 60

1360

ACAAATTATT TAAACTAAAA GAGAACGGTA CAGACGTTTCG TACAGAGGTT CTCGCTGGTT	120
TAACAACTTT CTTTGCAATG AGCTATATTC TCTTTGTAAA CCCACAAATA CTTTCACAAA	180
CAGGAATGCC TGCTCAGGGC GTCTTCCTAG CGACGATTAT TGGTGCAGTA GCGGGTACCT	240
TGATGATGGC TTTTATGCT AACTTACCTT ATGCCCAAGC GCCAGGTATG GGAATCAATG	300
CCTTCTTTAC CTTTACAGTT GTATTCGGGC TTGGTTATTC TTGGCAAGAA GCCCTAGCTA	360
TGGTCTTCAT CTGTGGGATT ATTTCAATGA TTATTACCTT GACAAATGTT CGTAAAATGA	420
TCATTGAATC GATTCCCAAT GCTCTTCGCT CAGCTATTTT AGCTGGTATC GGTGTCTTCC	480
TTGCCTATGT AGGGATTAAG AATGCTGGAC TTTTGAAATT CACGATTGAT CCAGGCAACT	540
ATACTGTGT AGGAGAAGGG GCTGACAAAG CTCAAGCAAC GATTGCAGCA AACTCTTCAG	600
CAGTTCAGG ATTGGTCAGC TTTAATAATC CAGCTGTTTT AGTGGCTCTT GCAGGACTTG	660
CCATTACTAT CTTCTTTGTC ATC	683

## (2) INFORMATION FOR SEQ ID NO: 339:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 852 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 339:

CTACTTTACA TGGAAGTAGT CACTGAATTC CAGTTAGAAA TTACTTTGTA ACTACGTTTT	60
GAGGAGGAGT AAAATGCTTT CCTACGTTTCG ATATTACCCA CTAGCGATAG CTAATTAAT	120
GTGTCTGTGC TCTCCTAAAA TCTGCTGATT TATTACTGAC TAATACAGGA GGTTTTTTTT	180
ATGgACAGAC AATCATATCT GCTATTGGTG TTTATATTTT CACCAGTATC GATTATTAA	240
TTATTTTAAT TATTTTATTT GCACAGCTAT CACAGAATAA ACAGAAATGG CATATTTATG	300
CGGGGCAATA TCTAGGCACA GGCTTACTTG TAGGGGCGAG TTTAGTTGCT GCTTATGTCG	360
TTAATTTTGT GCCTGAAGAA TGGATGGTTG GATTGCTTGG TTTAATCCCT ATCTATTTAG	420
GGATTGCTT TGCAATTGTT GGAGAAGATG CGGAAGAAGA AGAGGAAGAA ATTATTGAAA	480
GATTAGAACA AAGCAAGGCA AATCAACTGT TTTGGACAGT TACATTGCTG ACAATTGCGT	540
CTGGCGGAGA TAATTTAGGT ATCTATATAC CTTATTTTGC TTCGTTAGAT TGGTCACAGA	600
CCCTCGTGGC CTTGCTTGTG TTTGTAATCG GCATAATTAT CTTTTCGCGAG ATTAGTCGGG	660
TGTTATCCTC TATTCGGTTA ATATTCGAGA CAATTGAAAA ATACGAGCGA ATCATTGTGC	720
CCTTAGTATT CATTCTACTT GGACTATACA TCATGTATGA AAATGGCAGC ATAGAGACTT	780



1361

TTCTGATCGT GTAGATTTTT TTGTTTCACT AGGGATTAG CCCGAGCTCA AATCAGCTCT 840  
CTGATTTTCA GA 852

## (2) INFORMATION FOR SEQ ID NO: 340:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 754 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 340:

CCGCACAAAA GCGCATAGTA TCAAGATTCT ATAAAGCCTT GATACTATGC CTTTTTAATG 60  
GATAAATAGT TAGTCTTTT TAAAGACCGG ATCTTTCAAA CTCTGCATAC TGGCATTGAT 120  
CACCGCGCCT AGGATAACAA TTTAGCAAT CAAGATAAAC CAAAACATCA TAACAACAAG 180  
AAGAACGGAA CCTAAATTC GGACATCCAC CAAATGATGG ACATAGTAAT TGAGATAACT 240  
AGAGAACAGA GTTAGTAAAC CTAAATCAC TAAGAGAACA AAGGCACTGC CTGGTAGGGT 300  
ATAGCTAATT TTCCTGTTAG ATAGATTGGG AAGAAAATAA TAAAGCATGA CCAAGATACC 360  
AAAGAGGAGG GCGTAAATCA GAGGACCTGC CAACCCTTGT AAAGCCTGAT AGATAATGCC 420  
ATCTTTTGTG CAATAATGAG CAAGTAAAGC CAAATCATC TGACCAAATA AGATCAAAAA 480  
CAAGGCAAAC GCAAAGAGGA GCTGCAACCA AACTGACTA GGAGACTTAG CATCTGATGG 540  
GAAATAAGTC CACGACTCTT TTCGACGCCA TAAGCCTTGT TAAAAGCTTT TTGCAAGAAA 600  
TTCATAGATT TTGAAAAACT CCATAACGCC GATAAACAG AAAAAGCTCA TAAACCTGTT 660  
GAAGTTGCG TCAAGACTTC TCTGGCTATT TTTCCACAC CTTCATAGAG GCTTGGGGGG 720  
CAGACGTCTT TCATAAGCC CAAAATTCT CCCA 754

## (2) INFORMATION FOR SEQ ID NO: 341:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 707 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 341:

GGGGATAACT CTAGGAGTAC CGCTATTACT CGACTTAATG AGTGCACAAG AAGTCAGGAT 60  
TTTTATGCAG GTTGGGCGCT TCATCAGACA GGGAAGATTT ACAGCGACTA TTATGGAAGT 120

1362

CAAGGTTTGC TTTATTATTT GCTGACTTAC GTGAGTCAGG GCGGATTTTT CTTTGCCATC	180
TTTGAGTGGT TAGCCTTGGT AGCAGGAGGA TTTTTCCTTT TTAGATCAGC GGACACCTTG	240
ACAGAGCAAG GAGACCAAGC TGGACATCTG GTGACTATTT TTTACATGCT AGTTACAGGT	300
CTTGCTTTTG GTGGAGGCTA TCGGACTCTT TTAGCGCTTC CTTTCTTATT CGCAGCCTTT	360
AGTTTAGTTG CGGCTTACCT AAGCAATCCA AGCCATGATA AGGGATTGTG ACGGATTGGG	420
CTAGCTTTGG CAGGCGGATT TTTCTTTGCT CCCTTATCAT CGCTCCTGTT TATTGCTGTA	480
GTGAGTTTAG GCTTGTGGT CTTTAACCTT GGGCATAGAC GCTTTGCGCA TGGGTTTTAT	540
CAGTTTCTTG CAGTGGCTTT AGGTTTTTCA CTGTCTTTT ATCCAACGTC CTACTATAGT	600
GCTGCAACAG GAAGTTTTGG GGATGCGWTT AGTGGTATTC GTTATCCTAT TGACAGTATT	660
CGCTTTGATT TTAATTCTAA AATTTTAGAG AATATGTTTT TTAAAGG	707

(2) INFORMATION FOR SEQ ID NO: 342:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 762 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 342:

GGATTTTGAA AAACCATACC GATTTGACGA CGTATATTCC AAACATTTTC CTCAGTCAAA	60
CGTTGGCCAT CAATTACAAT CTCTCCGGAT TCTGCTTCCA GTAAGCCATC AATTAATCGA	120
ACCGTCGTTG ATTTACCACT ACCATTATGC CCTACAATCG AAAGCCATTC TCCACGTTTC	180
ACGTGAAAgT AATATCCTTC ACATCGTAGT AGTTCTGATT TTCTTTATAG CGAAAAGAAA	240
GATTTTTTAC ATCAATTATT GATTTCAATTT CGAACCAAAAT GTCCCTTTAA ATACATAGGC	300
ACTACCCTTG AAATAGTCAT AGCCAGAGTA GATAGTGAAA AATAAGGCTA CATAAAGTAG	360
AACTTGACCA AGCAAAGTCC AATGTAATAG CAAGAAAATA ATGGCAAACA TCTGACTAAA	420
AGTTTTAATT TTTCCAGGCA TTGCTGCTGC TAAAATTGTT CCACCAGTTT CAACCAATAA	480
AAGCCTTAAA CCTGTCACAG CTAACTCACG ACAGATAATC ACTGCAACAA TCCAAGCCGG	540
AGCCATACCT AACTCAATCA ACATAATAAA AGCCGACATA ACTAGTAACT TATCCGCCAT	600
AGGATCTGCA AATTTACCAA AATTACTGAC CACATTCCAT TTACGAGCTA AATATCCATC	660
TAAATAGTCG GTAATACTGG CAACAGCAAA GATAATAGCT GCAACTATAT GACTCTCTAT	720
CGAATTTCTT ATCGTTAAAA TAAAGATAAA AATAGGTATA AA	762

(2) INFORMATION FOR SEQ ID NO: 343:

1363

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 482 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 343:

```

CTTTTGATAC ACTTAAACTA TGAATACAAA TCTCAAGCCC AAAC TTCAGC GTTTTGCTTC 60
TGGGACTGCC TTGCCTGTC CTATCTGTCA AGAAATCTG ACTCTGTTAG AGACTAATTT 120
CAAGTGCTGC AACCGTCATT CTTTGACTT GCGGAAATTT GGCTATGTCA ATCTAGTCCC 180
TCAAATCAAG CAATCTGCTA ACTACGACAA GGAAATTTT CAAACCGTC AACAAATCCT 240
AGAAGCCGGC TTTTACCAAG CTATCTTAGA TGCTGTATCT GACTTGCTTG CAAGTCAAAA 300
AACTACCACA ACAATTTTGG ATATCGGTTG TGGTGAAGGA TTCTATTCTC GCAAAC TACA 360
AGAAAGTCAC TCTGAAAAA CTTTCTATGC CTTTGACATC TCCAAAGATT CAGTCCAAAT 420
CGCGGCTAAA AGTGAACCCA ACTGGGCAGT CAATTGGTTC GTTGGCGACT TGGCAGCACT 480
TC 482

```

(2) INFORMATION FOR SEQ ID NO: 344:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 520 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 344:

```

TTTATTTTAA TAAAGTCAAT ACCTGTCTTT ACTTTTCTT AAAAAAGTT TATTATGTTT 60
TTTAAGGAGG TGTAACAT GAAATAAAT AATAAACTCG TTGGAGAACG TATTCAAAT 120
ATCCGTTTAA GCCATGGCGA CTCTATGGAA AAATTTGGAG AAAAATTTAA TACTAGCAAA 180
GGTACAGTTA ACAACTGGGA AAAAGGTCGC AATTTACCAA ATAAAGAAAA CCTACTAAAA 240
ATTGCATCTA TTGGAAAAAT GAGTGTTGAA GAGTTACTCT ACGGCGATTA CAATACTTAT 300
CTACACTTAA AGATTATGGA TTTAGCTCCT GAATGTATAA AAAATTATGA TGAGTATAAC 360
TCTTTACACG ATGATATAAC AAATAAGCG TTACAGATCG CTCAAATAC CATTTCTAAG 420
ATTGATTATC AAATTTTACA CGAAACGATC AAAAAATTTA TTGATTTAGC TATCGAACAA 480
TCGAGAGATT TGCAAGGAAA TTTGTTGAAA AATAACGGGT 520

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1364

## (2) INFORMATION FOR SEQ ID NO: 345:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1003 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 345:

```

GCATCAAATC CGCCATCAAA GAAGTTCTCT GGATTACCA AGACCAGTCA AATAGCTTAG      60
AAGTGCTTAA TGACAAGTAC AATGTTCACT ACTGGAATGA CTGGGAAGTT GGAGACACGG      120
GAACCATTTG TGAGCGCTAT GGTGCCGTTG TTAAGAAACA CGACATTATC AATAAGCTTC      180
TCAAACAGTT GGAACCAAT CCTTGAACC GCCGCAATAT TATTTGCTC TGGGATTACC      240
AAGCTTTCGA AGAACAGAT GGGCTGCTCC CGTGCGCCTT TCAGACCATG TTTGATGTTT      300
GGCGTGTTGA TGGGGAATC TATCTGGATG CGACCTTGAC CCAGCGCTCC AATGATATGC      360
TGGTGGCCCA CCACATCAAC GCTATGCAGT ATGTGGCTTT GCAGATGATG ATTGCCAAAC      420
ATTTTGCTG GAAGGTTGGG AAGTTCTTCT ACTTCATCAA CAACCTCCAT ATCTATGATA      480
ATCAATTTGA ACAAGCTCAG GAATTGCTCC GTCGGGAGCC GTCAAAGTGC CAACCACGCT      540
TGTTTTTAAA TGTTCCTGAT GGGACTAATT TCTTTGATAT CAAAGCAGAA GATTTTGAGT      600
TGGTGGATTA TGACCCTGTT AAGCCACAGT TGAAGTTTGA CCTAGCTATT TAAAAGAATA      660
GAAAAAAGAA GTTGAGAATA ATCCCAACTT CTTTGTGTTT TTAACGTGAT ACGCGGCGAC      720
GAGCTGCTTT TTTACGGTTT TCTTCGATGA AAGCTGCTTT TTGCTCTTCT GGTTCGATTA      780
CTTTCTTTT AAATGCGTAT ACTGCACCTG CAACGGCAGC GACAGTTCCT GCGACACCTG      840
TTACAAGACC TTTAGCGAAT CCTTAGCCA TGAGTCTTCC TCCTTTATAT TCTCAATCAG      900
CCAGCCTCCT CAAGAGGTCA CATTCTCTG ACTGACCTTT TTGTGTTATA ATAATAGTAA      960
CGAAAAATG GGAATTTTTC AAGGAAAAAA GATGAGAACA AAA                        1003

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## (2) INFORMATION FOR SEQ ID NO: 346:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 750 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 346:

```

CCGCACGTAC TATTCCAGAT GCCGAGGAAG TGGACCTCAT CCTCGTTGGC GCAACTGGTC      60

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1365

TCAACGCCTT TGAACGCCTC TTGGTCGGCT CTTTCATCTGA ATACATACTC CGCCATGCTA	120
AGGTCGATTT GCTGGTTGTG AGAGAACAAG AAAAAACCTT ATAATCACAA AGAAAAGGAG	180
CCCCTAGCTC CTTTTTGTTT ACGATTATT TCTCTCTTTA TGGCGTTCGT AAGCCTTGAG	240
CTGGCGCTGC AGTTCCTTTT TAATAGCAGG TTCTGGAGCA TATTTTCTT CCCAATTATC	300
TGGTTTAAAG ATTTTATGGG TCACTGGATC AAAATGAGCC TTGCCATCTG GAAAAATTTT	360
CCCCATATTG GCCTGATGGA CAATATCAAA AATACGTTCT GGGTCCACCC CCATCAAGAC	420
AAAACGCGG TAGGTGAAGT AAAGCGTGC AATCAAGGCA TCCACTTGCC CTATCAAATC	480
TTGCTGAGCA GGTGTCTTCT TGGCTACTTT ATCTGCTGCC TTATCAAGGG CCTGATGAAG	540
TTGGGATACA GCTTGACCAA AATCTTCTTC AGAAGGACTG GCTGCTCGAA CAACTCCAC	600
CAATTCTTCT ATTTTAAAC CAGCCCTATG GGTTCACCC TCTAAATCCC AAGCTCGAGG	660
TTCTTCTTGG GTTCGTTTCT CCATCATGTG GTGAAAAGTC TTGACCTTAT TGAAATGATA	720
GTACGGCTG ACAAAGACTT TTTCTGAAGA	750

(2) INFORMATION FOR SEQ ID NO: 347:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 596 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 347:

CGCAACATAC GGATAACCTC CAAAGAATAT TTTTATATTA TAGCAAAGCT TTAAATTGAA	60
TGTTAGAGTC TTGTTCAAAA CAATCATCAA AACCACGTGG ATGATGGTAT TCTACTAAGT	120
GTTGATCTTG AGGATAAGTG TACTTACCGC CAACTTCCCA GATAAATGGA TGGAAATCGT	180
ATTGCAAGCG ATCTTTTCGC ATTTTCCAAA GTTCTAGAAT CTCATTAGTA GAAGCCATGA	240
AGTTAGACCA GATATCATAG TGAAC TGGA TAATGACTTT GGTACGCAGA TTTTCTGCCA	300
TACGAAGAAG GTCGATAGAT GTCATTTGT CTTGGATACC TACCGGATTT TCACCATAGT	360
TATTCAAAGC AACATCAATT TTAAAGTCTT TACCATGTTT TGCAAAATAG TTTGAGAAGT	420
GAGAACTGCG ACCATGATAG ATGGTTCCAC CTGGTGTTC AAAGATATAG TTAACAGCCT	480
TTTGAGCCAT TTCTTCATCT GTAACAGCCA AGCCAGCAGT TCACCGCCTG TCTCATCAGC	540
ACCGTTCACT GGGAGAGTTA CCAAGCAAGT ACGGTCAAAT GATTCTACTG CATGAA	596

(2) INFORMATION FOR SEQ ID NO: 348:

1366

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 673 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 348:

CAGAGTCAAC AGCCTGAGTT GAAGGCAACT TTAGACACAG CAGTTACGAC AGCTGAATGA	60
GCTCCTCCAT CAGTTTTTTC TTTAATGAGT CCAGCTACAT CTTCAACTTC GAGGCCGTTA	120
ATCACAATGT CAGCGCCTAC TTCTTTTGCA AGGGCAAGTT TGTCAATTGT GATATCGACT	180
GCGATAACAT GAGCATTGAA TACTTTTTTA GCGTATTGAA CAGCGAGGTT ACCAAGTCCA	240
CCAGCACCGT AAAGAACAAC CCATTGGCCT GGTTCAACTT TTGCTTCTTT GATAGCTTTA	300
TAGGTTGTTA CTCCAGCACA TGTGATAGAA GAAGCTTGGG CTGGATCAAG TCCGTCAGGA	360
ACTTTGACAG CATAGTCAGC AGTTACGATA CATTGTTTCAG CCATACCACC GTCTACTGAG	420
TAGCCAGCAT TTTTCACTGT ACGGCAAAGG GTTTCGCGAC CAGTTGTACA GTATTGCGAA	480
GTGCCACATC CTTCAAAGAA CCAAGCAACG CTGACGCGGT CACCGACTTT AAGGCTTTTC	540
ACATCTGGAG CAATCTCTTT AACGATACCG ATACCTTCGT GCCCAAGAAC ACGTCCTGGG	600
ACTTGACCAA AGTCACCATG AGCAACGTGG AGGTCGGTGT GGCAAACGCC CACAGTATTC	660
ACTTCTACAA GTG	673

(2) INFORMATION FOR SEQ ID NO: 349:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 198 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 349:

GTACCCTACA AATGCTTTAC AGTATGGGTT GAGGGTGGTC AATGGAAC TAAGTAGGTT	60
TGGACAGGAA CTTTGGGATA TTCTGATTAC TTACATTCTA CTCGATATCA TACAGCAACT	120
GTTAGACATG GGGGTAGAAC CTCTAAGGAT TATGCAAAAC CTGAGGCATG GGCTAGAGCT	180
TCCCTCACCA AGATTCCG	198

(2) INFORMATION FOR SEQ ID NO: 350:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 891 base pairs  
 (B) TYPE: nucleic acid

1367

(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 350:

GCTTCTTCTA TAGACAAAAA TATCATGGGT AAAATAATCA AGGCTATAGC TAGAAGGAGG	60
GACCAATCCA CTAATAATCC TAAGAACAAA ACACTCAAGA GAGCAGAAGA GAGAGGTTCA	120
CTGGCACTGA TAACGGCAAC CACCAAAGGA GAAACCAAGG ACACAGCCTT CATGGAAATG	180
AAAAAAGCAA AAGCCGTTCC AAAGAAAGCG ATAATGAGGC AAATCAAGAT ACTCCAAATA	240
TCAAGAGTAA AGGAAAGCTG ATAAACCGGC GAGAGGACAT TGCTAAACAA ACCTGCCAAA	300
ATCATCCCCC ACCCAACCGT AGGAACAAAA CCATAACGCT TAGCAAAAGG TTGGGGCAAG	360
ATAACATTAA ACATAACACC CATGGCACTC AGCAAACCTG TTATAAGAGC TAGCGGCGTC	420
ATGGATAACT GAGAGAGGTC TCCCTTTGTC GCCATCAAGC AAACACCCAG CATGGCAACC	480
AAAACATAGA AAACAGCGCT TTTTGACGCT CGTTTTTGAT AAACCAAGCG ATTGTAAAG	540
AGGATAAAGA CAGGGCTAAT AAAGTGAAA ATAGTTGCTG TCGTAGCATT TGAGTATTCT	600
ACACAGAGAT AGAAAAATA CTGAACTGAA AAAATCCCCA AAATAGCATA GGCTAAAAAG	660
GGCAGGTAAT TTTTCTTGTC TCGCCAAATA TCTAGCACTT GCGATTTTAA TTGTATTGCA	720
GACCAATGA GTACAAGACT CCCTGCCAGT GTCAAACGCA TAGAGGTAAT CCAGCCCGAA	780
GACACCTGAT AATGAGTAAA GAAGTACTCT CCTAAAATTC CACAGATTCC CCATATTAAG	840
CCGGATAGGA GCGAATAAAT TTTTCCGTTA ACAATCTTTT TCTGATACTG A	891

## (2) INFORMATION FOR SEQ ID NO: 351:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 325 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 351:

GAAAGCGTTC AATAGAACAT TGCTTTTTTA TTTTAGAGT AAGCTAAGCG CTTGAGCATC	60
TGCGATGATG GTTACATCAG GGTGATTTTG GAGGCTACTT GCAGGTAGGT TCTCAGTCAC	120
TGGGCCAGAT ACTGTTCCGG CAATGGCTTC TGCTTTTCGAC TCACCGTAAG CAAAAAGAAT	180
AATAGACTTG GCATCCAAAA TGTTTTTAAT CCCCATTGAA ATAGCTTGGG TTGGGACGTC	240
TTCAATCTTG GCAAAGAAGC GTGCATTGGC TTCGATAGTA GACTGGTCAA GTTCTACTAG	300

1368

ATGCGTTTGA CTGTCAAATG GAGTG

325

(2) INFORMATION FOR SEQ ID NO: 352:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 344 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 352:

CAAGAGCAGT TTGATGATT TTGATAAGCA TCGGAATTAA AAATACAAAT ATGGCAATCG	60
CAAGTTTTGG TGTAGAGGCT ATTATGTAGA TACGGTAGGC CGTAATCAGA AAGTGATAGC	120
TGAATATATT CAGAATCAAT TACAAGAAGA CAGAGTAGCA GACCTAGCTC ACGTTATTGC	180
AGTCAGTAGA TCCGTTTACT GGCGAAATAA ATAAGAGGAA GTAACGTAA GTGCTTTAGC	240
ACCTGCTCGG GAAAGTGGTG CGCGAGGAAG CTATTTCCAGG ATGCTTTGGC CCTGGCCGGT	300
AGAAGCGTTA TAGCCGCAGA CTACGACACT TCACACTGGT GGTT	344

(2) INFORMATION FOR SEQ ID NO: 353:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 692 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 353:

CCCTATCCCT GCTATTGGGG CTGCTCTCAT TGCTGCTTG GCACAAATCA GTCTTCCAAT	60
TGGACCTGTT CCCTTCACTC TGCAAAACTT TGCAATCGGC TTGATTCTAC TGTCTTTAGA	120
CCGAGAGAGG CTGTACTTTC TGCTGGACTC TATCTTCTTC TAGGTGCTAT CGGTCTTCCT	180
GTCTTTGCAG GAGGTGGAGC TGGTTTTCAG GCTTTAGTTG GCCCTACTGC AGGCTATCTT	240
TGGTTTTATC TCGTTTACTC TGGACTTACT TCCTCTCTAA CCAACAGCAA GAGTGGTGTT	300
GTAAAGATTT TTCTTGCAAA CCTCTTGGGT GATGCCCTTG TCTTTGTCGG CGGGATTCTC	360
AGCTTGCAAT TCCTAGCTGG AATGGCATTT GAAAAAGCTC TTGCTGTGGG GGTCTTCCCC	420
TTTATCATTC CAGACCTTGG CAAACTTCTA GCTATTAGTT TTATTAGCCG TCCCCTACTT	480
CAACGCCTTA AAAATCAGGC TTACTTTACT AACTAAAAAA GGATATCGAG TTATCATGAC	540
TCAATATCCT TTCTTTTAT TTTGAAAAC TATACTCAAT GAAAATCAAA GAGCAAATA	600
GGAAGCTAGC CGCAGGCTTG CAAAACACTG TTTTGAGGTT GTGGATGAAA CTGACGAGTA	660



1369

AnATCTCATA CATACGGCAA GGCAAAGCTG AC

692

(2) INFORMATION FOR SEQ ID NO: 354:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 1005 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 354:

GTGATGGACT ACTGGTTCAA AACGCATCCA GAAGATTTT TCGATAATGT CGGACCTCTT	60
GTAGCCAGTA ACTTTTTTCA TACTTACACC GAAGATTTC ACTTGATGAA GGAAATGGA	120
GTTAATTCTT TCCGCACTTC CATCCAATGG AGTCGACTCA TCAAGAATT AGAGACAGGT	180
GAGCCTGATC CAAAAGGTAT TGCTTTCTAC AATGCCATCA TTGAAGAAGC TAAAAAGAAC	240
CAGATGGATC TTGTGATGAA TTTACATCAT TTTGATTAC CAGTGGAAC TCTTCAAAAA	300
TACGGTGGTT GGGAAAGCAA ACATGTAGTG GAGTTATTCG TGAAGTTTGC CAAGACTGCT	360
TTACATGCT TTGGAGATAA GGTTCATTAC TGGACAACCT TCAATGAGCC AATGGTCATT	420
CCAGAAGCAG GGTACTTATA TGCTTTCCAT TATCCAAATC TAAAAGGAAA GGGAAAAGAG	480
GCCGTACAAG TCATCTATAA TCTAAACCTT GCTAGTGCAA AAGTGATTCA ACTATATCGC	540
TCATTAGAAC TTGATGGAAA GATTGGGATT ATTTTAACT TGACACCTGC TTATCCAAGA	600
AGTAATTCTC CAGAAGACTT AGAAGCAAGT CGATTTACAG ATGACTTCTT TAACAAAGTC	660
TTCTTGAATC CAGCTGTAA AGGAACCTTC CCAGAAAGAT TGGTAAAACA GCTAGAGAGA	720
GATGGCGTGT TATGGAGTCA TACCGAAAAA GAGCTTCAAC TGATGAAATC AAATACGGTT	780
GATTTTCTTG GAGTAAACTA CTACCATCCA AAACGTGTT AAGCACAAGC AAATCCTGAG	840
GAATATCAGA CGCCCTGGAT GCCAGACCAA TACTTCAAAG AGTATGAATG GCTGGAGCGT	900
CGCATGAATC CATATCGTGG TTGGGAAATT TTCCGAAAG CCATTTATGA TATTGCTATG	960
ATTGTGAAGG AAGAATATGG TAATATCCCA TGGTTTATCA GTGAA	1005

(2) INFORMATION FOR SEQ ID NO: 355:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 973 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

1370

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 355:

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CCGACAAGCA ATATTAAAA GAGTAAACTA TTAAGTAGTT AATTAACCGG TTTATTACTT      60
TATAGTGAAT CAAATATACT TAAGAAAAGA GGAAAGAATG AAAATTAATA AAAAATATCT      120
AGCAGGTTCA GTGGCAGTCC TTGCCCTAAG TGTTTGTTC TATGAGCTTG GACGTTACCA      180
AGCTGGTCAG GATAAGAAAG AGTCTAATCG AGTTGCTTAT ATAGATGGTG ATCAGGCTGG      240
TCAAAAGGCA GAAAACTTGA CACCAGATGA AGTCAGTAAG AGGGAGGGGA TCAACGCCGA      300
ACAAATGTGT ATCAAGATTA CGGATCAAGG TTATGTGACC TCTCATGGAG ACCATTATCA      360
TTACTATAAT GGCAAGGTTT CTTATGATGC CATCATCAGT GAAGAGCTCC TCATGAAAGA      420
TCCGAATTAT CAGTTGAAGG ATTCAGACAT TGTCAATGAA ATCAAGGGTG GTTATGTCAT      480
TAAGGTAAAC GGTAAATACT ATGTTTACCT TAAGGATGCA GCTCATGCGG ATAATATTCTG      540
GACAAAAGAA GAGATTAAAC GTCAGAAGCA GGAACGCAGT CATAATCATA ACTCAAGAGC      600
AGATAATGCT GTTGCTGCAG CCAGAGCCCA AGGACGTTAT ACAACGGATG ATGGGTATAT      660
CTTCAATGCA TCTGATATCA TTGAGGACAC GGGTGATGCT TATATCGTTC CTCACGGCGA      720
CCATTACCAT TACATTCCTA AGAATGAGTT ATCAGCTAGC GAGTTAGCTG CTGCAGAAGC      780
CTATTGGAAT GGGAAGCAGG GATCTCGTCC TTCTTCAAGT TCTAGTTATA ATGCAAATCC      840
AGCTCAACCA AGATTGTCAG AGAACCACAA TCTGACTGTC ACTCCAACCT ATCATCAAAA      900
TCAAGGGGGA AACATTTCAA GCCTTTTACG TGAATTGTAT GCTAACCCCTT ATCAGAACGC      960
CATGTGGGAT CTG                                     973

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(2) INFORMATION FOR SEQ ID NO: 356:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 843 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 356:

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GGTCGCATCT GCAATATCTG TCGCCTCCAC ATAAGCGACA CCAGCCTTGT CTGCTGCCCG      60
TTTGACACGT TCTGCAGATT GACCCAGGAT GACCATCTTC TTGAGTCCAG TAATGTCTGG      120
CACCAATTCTG TCAAATCAT TGCCACGGTC CAAACCACCT GCAATCAAGA CGACCTTGCT      180
GTTGTCAAAT CCTGACAAGC TTTTGTAGTA GCCAAGATAT TAGTTGATTT ACTGTCGTTA      240
TAGAATTTAA CACsCTTGAT GTCATCCACA AACTGGAGAC GGTGTTTGAC ACCACCGAAG      300
GCTGAAAGAG TTTCTTGAT GGTGTTGATTG TCCACATCAC GAAGCTTGGC TACAGCAATA      360

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1371

GTCGCAAGGG CATTTTCCAC ATTGTGGCTA CCTGGAACAC CGATTTTCATT CGCTGCCATG	420
ACTACTTCAC CACGGAAGTA GAGTTGACCA TCTTCCAGAT AAGCTCCATC AACCTTTTCA	480
AGTGTGAAA ATGGTACAAC AGTGGCTTCT GTCTTGGAAG TCAAGTCTTT TGCCAAGTCT	540
TGATTAAAGT TCAAGACAAG GAAATCAGCT GCTGTCATCT TGTTCGGAT ATTCCACTTG	600
GCTGCTACAT ATTCCGAAAA TGACCCATGG TAGTCGATAT GAGTTGGCAT GAGGTTGGTA	660
ATAACCGCAA TCTCTGGATG GAATTCCTTGA ACACCCATGA GTTGGAAGA AGAAAGTTCC	720
ATAACAAGCG TGTCTTATC TGATGCTATT TGAGCAACCT GACTAGCTGG ATAGCCGATA	780
TTCCCTGATA AAAGACCATG TTGGCCAGCA GCAGTCAAAA CTTCCCGGGn TCCTCTAGAG	840
TCG	843

## (2) INFORMATION FOR SEQ ID NO: 357:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 807 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 357:

TTTTTTTAT ATTTTTTTTA TTTATTATTT TTTGGCAAAA AAGACCAATT TGCTTTGGAG	60
CATTGCTTCT GCATTAAATT GTCTATTTT GTCGTGCTG TTACGCTCTT TGTATCATGT	120
ATTAAGTAGC AAGTGCAACT TGCAAACTAC TAGTAAGAGG AGAAAAACAA AATGGTTATG	180
ACTGACCCAA TCGCAGACTT CCTAACTCGT ATTCGTAATG CTAACCAAGC TAAACACGAA	240
GTACTTGAAG TACCTGCATC AAACATCAAA AAAGGGATTG CTGAAATCCT TAAACGCGAA	300
GGTTTTGTAA AAAACGTTGA AATCATTGAA GATGACAAAC AAGGCGTCAT CCGTGTATTT	360
CTTAAATACG GACCAAATGG TGAGAAAGTT ATCACTAACT TGAAACGTGT TTCTAAACCA	420
GGACTTCGTG TCTACAAAAA ACGTGAAGAC CTTCCAAAAG TTCTTAACGG ACTTGGAATT	480
GCCATCCTTT CAACTTCTGA AGGTTTGCTT ACTGATAAAG AAGCAGCCA AAAGAATGTT	540
GGTGGTGAGG TTATCGCTTA CGTTTGGTAA AATCAAGATA CAAAGCTCGT AAAGAACAAA	600
GCAAAATTAG GAAGTTGGAG AAGTTTGTTC ACAACAGGC CAACTTATCT ATTTTGCACA	660
GTTCTTAGAG CGTGTTCACT TCAGCTCTTG AGCTAAGTAA GTATCTGAAC CCCGTGAAAA	720
CTGGCCGTGC TGGCATGTTT GGGTAACAGG AGAATAATAA CATGTCACGT ATTGGTAATA	780
AGTTCAGCTA AGGCCTTCGT AAAAGTT	807

1372

## (2) INFORMATION FOR SEQ ID NO: 358:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 653 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 358:

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CCCAGTATTT TTGTCCAAGC ACGACCAGAA AAGGATGATA CAGATCTGGA ATTGGCTCTC      60
TTAACCATCT tTGAACAAAA TCCTCAGGCT CAGGTCACTA TTTTCGGTGC CTTGGGTGGC      120
CGTATTGACC ATATGTTGGC CAATGTCTTT CTGCCTAGCA ATCCTAAGTT GGCACCTAT      180
ATGCATCAAA TAGAAATTGA GGATGGGCAA AACTTGATTA CTTATTGTCC AGAAGGAATC      240
AGTCAGCTAG AACCTCGTTC AGACTACGAC TATCTAGCCT TTATGCCAGT TCGGGATAGC      300
CAAGTATGAG TTGACAGAGG AAAATTTTTT CTTTAAAAAA GTGTACGCTT CTAACGAATA      360
TATAGATAGG GAAGTGTCCG TAACTTGCCC AGATGGTTAT GTGGTCGTAC TGCATAGCAA      420
GGACAGGAGG TAGGATGGAA AGTTTACTTA TTCTATTATT AATTGCCAAT CTAGCTGGTC      480
TCTTTCTGAT TTGGCAAAGG CAGGATAGGC AGGAGAAACA CTTAAGTAAG AGCTTGAGG      540
ATCAGGCAGA TCATTGTGCA GACCAGCTGG ATTACCGCTT TGACCAAGCC AGACAAGCCA      600
GCCAGTTAGA CCAAAAAGAT TTGGAAGTGG TTGTCAGCGA CCGTTTGCAA GAA      653

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## (2) INFORMATION FOR SEQ ID NO: 359:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 641 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 359:

```

CACCATGTGA TGTGACGCTG GCCACAGCTG TCAGAAATCT GGCGAGCCAT CGTGTGCAAT      60
GACTCTTCCC GATGTAATCT TGTTCATAGT CCTTTGATGA ATATGTTCAA GCTGTAGAAG      120
GTGCGCTTCC TGAACACTTA TCAACTGTTA CAGGCGAGTT GACCAGTCAG GAAACAGATG      180
GCTGGTACAC ACTTGCCAAC ACTTCTTCAT CCCGCATTTA CCTAAAACAA GCCTTCCAAG      240
AAAATAGCAA CCTCCTAGAG CAAGTGGTAG AACCTTGAC TATTATCACT GGTGGACACA      300
ACCACAAGGA CCAGTTGACC TATGCTTGGG AAACACTTTT GCAGAATGCG CCACATGATA      360
GTATCTGTGG CTGTAGCGTG GACGAAGTTC ACCGCGAGAT GGAACGCGT TTTGCCAAGG      420

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1373

TCAACCAAGT AGGAAACTTT GTTAAAAGTA ACTTGCTCAA CGAGTGAAG GGTAATTTG	480
CTACGGATAA GGCTCAAAGT GACTATCTCT TTAAGTGCAT TAACACAGGC TTGCATGATA	540
AGGTCGATAC TGTCAGCACA GTGATTGATG TGGCGACTTG TGATTTCAAG GAATTGCACC	600
CAACAGAAGG CTACAAAAAG ATGGCTGCTC TTATCTTGCC G	641

(2) INFORMATION FOR SEQ ID NO: 360:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1958 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 360:

CCTCAAGGCC AATTTGAAGG CTCTAAAACA ATGGAAAAGT GCTACACAGA TGTGACAGAA	60
TTTGCCATTG CAGCAAGTAC TCAAAAGCTT TACTTATCAC CAGTTTGTAG TGGCTTTAAT	120
AGCGAAATTA TTGCTTTTAA TCTTTGCACT TCACCCAACT TAGAACAAGT ACAACAATG	180
TTAGAACAGG CATTCAAAGA GAAGCACTAC GAGAATACGA TTCTCCATAG TGACCAAGGC	240
TGGCAATATC AACACGATTC TTATCATCGG TTCCTAGAGA GTAAGGGAAT TCAAGCATCT	300
ATGTCACGCA AGGGCAACAG CCAAGACAAC GGTATGATGG AATCTTTCTT TGGCATTTTA	360
AAATCCGAAA TGTTTTATGG CTATGAGAAA ACATTTAAAT CACTTAACCA ATTGGAACAA	420
GCCATTATAG ACTATATTGA TTACTACAAC AACAAACGAA TTAAGGTAAA ACTAAAAGGA	480
CTTAGTCCTG TGCAGTACAG AACTAAATCC TTTGGATAAA TTAATTGTCT AACTTTTGG	540
GGTCAGTACA AAACTCTTGC TACTATGCGT TTTATTATTG AAAGACTTAT TGGACTTTCT	600
CTCAAATCGA GTTTTACTC AATTTTCTTA CTTGATTGGG ATTGAAATTC CAATTAATTT	660
CTCTGAGTAG AGTGTCTTGA TATTGGCTTC ATCAACAGAG GCCTTATCAA TTTTACGTTT	720
CAAGAAAAAT TCTTGAATGG TTTGATTTC AGGCTCACGA ATAGCACGGT GTTTGTTTGA	780
GATGAGGATT TCATAGTGAA GCGGAGCTTG GGTAAAAATA ACATCTGTAT TCCCTGCAGA	840
ATAAACCTCA ACAAGGGTTG CATCGGTACT TTCTAGCTGA CTTTTTACAA GTTGCGAGTG	900
TGAGTTTGTC GTATTGATAA GCTTCATAAT ATTTCCTCCG ATTTTCTAAT TCTATTATAG	960
CACTTTTGA ATAAAGTCGC TTGATTTATA CTCAATGAAA ATCAAAGAGC AACTAGGAA	1020
GCTAGCCGCA GGCTATACTT GAGTACGGTA AGGCGACGCT GACGTGGTTT GAATTTTATT	1080
TTCGAAGAGT ATTAGCCAAT CTTATGCTGT TTTTCCAAG ATTCAATGGC CCATTTATGG	1140

1374

CTACCACGTT TAAGGTTTTT GATAGCCTCG TCAATAGGGA ACCAGGCAAT ATGATTAAAG	1200
TTTTCTAGTG GCTTTTGTTAC TTCTTTGAAA GGAGTTGCTT CATAGAGGTA GGCAGGATTG	1260
TAGTAGTAGG TATCACGATG ACGAGAATAG AAATATTCGT CAGCTTGTCC GTAATAGGTA	1320
CCAATTTCTG CTGTGAAACC AAGCTCTTCA ATCAACTCAT GCTTTAGGGC TTCCTGATGA	1380
TTTTCACCTG CTTCAATTTT TCCACATGGT AGGAACCAAG CACCATTGGG TTCTTGAACA	1440
AGAACAATTT GTTTTGTTC AGGATTAGGG ATAACTGCAT ATACGCCATA GCGAGCAATA	1500
TAGTCTGTAT TCACTTTTT TCTCCGAAAG TTGGGTTTGC CATTCGATTT TCCTCATTAT	1560
CTAGTATCGT TATTATTATA GTGAAATGAA CCAAAAATAG TACACAATGT GGTATAATCT	1620
TCTTATGGCA TATTCAATAG ATTTTCGTAA AAAAGTTCTC TCTTATTGTG AGCGAACAGG	1680
TAGTATAACA GAAGCATCAC ACGTTTTCCTA AATCTCACGT AATACCATTT ATGGCTGGTT	1740
AAAGCTAAAA GAGAAAACAG GAGAGCTAAA CCACCAAGTA AAAGGAATAA AACCAAGAAA	1800
GGTTGATAGA GATAGACTTA AAAACTATCT TACTGACAAT CCAGACGCTT ATTTGACTGA	1860
AATAGCTTCT GAATTTGGCT GTCATCCAAC TACCATCCAC TATGCGCTCA AAGCTATGGG	1920
EACACTCGAA AAAAAAAGA ACTACACCTA CTATGAAC	1958

## (2) INFORMATION FOR SEQ ID NO: 361:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 851 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 361:

TATGAAATTA AGTTATGATG ATAAAGTTCA GATCTATGAA CTTAGAAAAC AAGGATATAG	60
CTTAGAGAAG CTTTCAAATA AATTGGGAT AATCAATTCT AATCTTAGGT ATATGATTAA	120
ATTGATTGAT CGTTACGGAA TAGAGTTCGT CAAAAAGGA AAAAATCGTT ACTATTCTCC	180
TGATTTAAAA CAAGAAATGA TTAATAAAGT CTGACATGAA GGCTGGACTA AAGATAGAGT	240
TTCTCTTGAA TACGGTCTCC CAAGTCGTAC GATACTTCTT AACTGGCTAG CACAATACAG	300
GAAAAACGGG TATACTATTG TTGAGAAACC AAGAGGGAGA GTACCTGAGA GCGGAGAATG	360
CCATCTTAAA AAAGTTAAGA GAACTCCGAT TGAAGGAGGA AAAAGAGAAA GAAGAAAGAC	420
AGAAATTGTT TAAGAATTAA TGACTGAGTT TTCGTTAGAT CTTCTTTTAA AAGTCATTAA	480
ACTAGCTCGT TCGACCTACT ACTATCACTT GAAACAGCTA GATAAACCAG ATAAGGACCA	540
AGAGCTTAAA GCTGAAATTC AATCCATTTT TATCGAACAC AAAGGAAATT ATGCTTATCG	600

1375

TCGGATTTAT TTAGAACTAA GAAATCGTGG TTATCTGGTA AATCATAAAA GAGTTCAAGG	660
CTTGATGAAA GTACTCAATc TACAAGCTAA AACGCGACAG AAACGAAAAT ATTCTTCTCA	720
TAAAGGAGAC GTTGGCAAGA AGGCAGAGAA TCTCATTCAA GGCCAATTG AAGGCTCTAA	780
AACAATGGAA CAGTGCTACA CAGATGTGAC AGAATTGGCC ATTCCAGTAA GTACTTAAAA	840
GCTTTACTTA T	851

## (2) INFORMATION FOR SEQ ID NO: 362:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1168 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 362:

GGGTAGAATC GATATCTCCA ATGAGTTGGT CTAGCTGGTG AAACGTAAA AAGATTTCGW	60
CCAATTCAAG GTTGAGGCAT CGCAAACAT GGACTGTTTC CTCGTCAGTT CTGGAAAGAA	120
AACGGGATAA GGTGCGTGT GAAGCAAGCT GCCCTCCTTC CAACAATTTT GGAAAGTAGG	180
CATCAGCTGA CAATTCTTTA CAAGCATAGT CCGTTCCATA ACCTGTTAAC AGTTGAAAGA	240
GGAACCTGAC AAGGATATCT GAATCCGAAT AACGACAGTA GCGGCGTTGG TCATTCGTTA	300
CTAAATACTT AGAAATCCGC TCTTTTAGTT TCAACTGGGA AAAAAAGTTCC TGAAAAAGA	360
TAAGACCACC ATACTGGGTT AAATGACCTC CATCGAAAGA TAGTTGGTAA AAAGACTTGT	420
TTTGGAAGTG ATGATTTGGT AAACGTTC A TGAGTTTC CTTTCTTTT GTGTTTTTTT	480
CTACACTTAT ACCATAAAGG GGAAACTCTT TTTTGTCTAG TAAAAACAC CCATTGGGTG	540
AAAAAAGAAA CCATCCAGGA TCTAAGCTAA GGCAAGGATT CTGGATGGTT TTTAGATTG	600
GGGTGAATAA TTGGGGTTTT AGCTGCTTGC GGCCAATCAG GTTCAGATAC AAAAATTAC	660
TCATCAACCT TTAGTGAAA TCCAACCTACA TTAACTATC TATTAGACTA TTACGCTGAT	720
AATATAGTCA ATTGAAACAA GAACAAGACA AAAGAGCCTC ATAAAGGTA TTGCAACTTG	780
GTAATACCTT TTTGAGGTGC TTTTGATAT GAGCCCATGT TTTCTCAATA GGATTGTA	840
CAGGTGAGTA GGGAGGAAGA GGTAAGTT TATACCCAAA CTCTTCACAC AAGAGTTCTA	900
ACTTACCCAT TCTATGGAAT CTTGCATTAT CCATAATAAT AACCGATGGT GTGTTTAATG	960
TTGGTAAGAG AAATTCTGA AACCAAGCTT CAAAAAGTC GCTCGTCATC GTCTCTCGT	1020
AAGTTATTGG AGCGATTAAC TCACCATTTG TTAGACCTGC AACCAAAGAA ATCCTCTGAT	1080

1376

ATCTTCTTCC AGATACTTTG CCTCTTCTTA ACTGACCTTT TAATGAGCGA CCATATTCTC	1140
GATAAAAATA AGTATCGAAT CCTGTTTC	1168

## (2) INFORMATION FOR SEQ ID NO: 363:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4483 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 363:

GTCAGCTTCA GCAAGCCCAT CAGCTTCTGA ATCTGCATCA ACCAGTGCCT CCGCTTCAGC	60
GTCAACCAAGT GCGTCGGCTT CAGCGTCGAC AAGTGCTTCG GCTTCAGCAT CAACGAGTGC	120
GTCGGCCTCA GCAAGCGCAA GTACCTCAGC GTCAGCTTCC GCCTCAACCA GTGCGTCGGC	180
TTCAGCAAGC ACAAGTGCGT CAGCCTCAGC AAGTATCTCA GCGTCTGAAT CGGCATCAAC	240
GAGTGCGTCT GAGTCAGCAT CAACGAGTAC GTCAGCCTCA GCAAGCACAT CAGCTTCTGA	300
ATCTGCATCA ACCAGTGCCT CAGCCTCAGC ATCGACAAGC GCCTCAGCTT CAGCAAGTAC	360
CAGTGCTTCA GCCTCAGCGT CGACAAGTGC GTCGGCCTCA ACCAGTGCAT CTGAATCGGC	420
ATCAACCAAGT GCGTCAGCCT CAGCAAGTAC TAGTGCATCA GCTTCAGCAT CAACGAGTGC	480
ATCGGCTTCA GCATCAACCA GTGCCTCGGC TTCAGCGTCA ACCAGTGCCT CAGCTTCAGC	540
AAGTACCAGT GCTTCAGTCT CAGCATCAAC AAGTGCTTCA GCCTCAGCAT CGACAAGTGC	600
CTCGGCTTCA GCAAGCACAT CAGCATCTGA ATCAGCGTCG ACAAGCGCCT CAGCTTCAGC	660
AAGTACCAGT GCGTCAGCCT CAGCGTCGAC AAGTGCGTCA GCCTCAGCAA GTACTAGTGC	720
ATCAGCTTCA GCATCAACGA GTGCATCGGC TTCGGCGTCA ACCAGTGCAT CAGAGTCAGC	780
AAGTACCAGT GCGTCAGCTT CCGCATCAAC AAGTGCTTCG GCTTCAGCAA GCACCAAGTGC	840
GTCGGCTTCA GCAAGTACTA GCGCCTCAGC CTCAGCCTCA ACCAGTGCCT CAGCCTCAGC	900
AAGTATCTCA GCGTCTGAAT CGGCATCAAC GAGTGCGTCC GCTTCAGCAA GTACTAGCGC	960
CTCAGCCTCA GCGTCAACAA GTGCATCGGC TTCAGCGTCA ACGAGTGCCT CTGAATCGGC	1020
ATCAACCAAGT GCGTCCGCTT CAGCAAGTAC TAGCGCCTCA GCCTCAGCGT CAACAAGTGC	1080
ATCGGCTTCA GCATCAACGA GTGCGTCCGC TTCAGCAAGT ACTAGCGCCT CAGCCTCAGC	1140
GTCAACAAGT GCATCGGCTT CAGCGTCAAC GAGTGCGTCT GAGTCAGCAT CAACGAGTGC	1200
GTCAGCCTCA GCAAGCACAT CAGCTTCTGA ATCTGCATCA ACCAGTGCCT CAGCCTCAGC	1260
ATCGACAAGC GCCTCAGCTT CAGCAAGTAC CAGTGCGTCA GCTCAGCGTC GACAAGTGCs	1320



1377

TCrGCTTCAG CAAGTACCAG TCGCTCAGCC TCAGCAAGTA CCAGTGCKTC AGCCTCAGCG	1380
TCGACAAGTG CGTCGGCCTC AACCAGTGCA TCTGAATCGG CATCAACCAG TCGCTCAGCC	1440
TCAGCAAGTA CTAGCGCCTC AGCCTCAGCA TCAACGAGTG CGTCCGCTTC AGCAAGTACT	1500
AGTGTCATCAG CTTAGCAAG TACTAGCGCC TCAGCCTCAG CGTCGACAAG CGCCTCAGCT	1560
TCAGCAAGTA CCAGTGCGTC AGCCTCAGCG TCGACAAGTG CGTCGGCTTC AGCAAGTACC	1620
TCAGCGTCTG AATCAGCATC AACAAAGTGGC TCGGCTTCAG CATCAACGAG TGCATCAGCT	1680
TCAGCATCAA CAAGTGCTTC AGCTTCAGCA AGTACCAGTG CGTCGGCTTC AGCATCAACG	1740
AGTGCTTCAG TCTCAGCGTC AACCAGTGCC TCTGAATCCG CATCAACAAG TGCCTCGGCT	1800
TCAGCAAGCA CCAGTGCTTC GGCTTCAGCG TCAACGAGTG CGTCTGAGTC AGCATCAACG	1860
AGTGCGTCAC CTCAGCAAGC ACATCAGCTT CTGAATCTGC ATCAACCAGT GCGTCACTTC	1920
CGCATCAACA AGCGCCTCGG CCTCAGCAAG TACAAGTGCT TCAGCCTCAG CATCAACCAG	1980
TGCATCAGCT TCAGCCTCAA CAAGTGCTTC AGCCTCAGCG TCAACCAGTG CCTCGGCTTC	2040
AGCAAGTACC AGTGCGTCAG CTTAGCAAG CACAAGTGCG TCAGCTTCAG CATCAACCAG	2100
TGCTTCGGCT TCGGCATCAA CAAGTGCTTC AGCATCAGCA TCAACGAGTG CGTCACTCA	2160
GCAAGTACTA GTGCATCAGC ATCAGCATCA ACCAGTGCAT CAGCCTCAGC AAGTATCTCA	2220
GCGTCTGAAT CGGCATCAAC GAGTGTCATCA GCATCAGCAT CAACGAGTGC ATCGGCTTCA	2280
GCGTCAACCA GTGCATCAGT CTCAGCAAGC ACCAGTGCGT CGGCTTCAGC ATCAACCAGT	2340
GCCTCAGCCT CAGCAAGTAT CTCAGCGTCT GAATCGGCAT CAACGAGTGC GTCAGCCTCA	2400
GCAAGTACTA GTGCATCAGC ATCAGCATCA ACGAGTGCAT CGGCTTCAGC AAGTACCAGC	2460
GCCTCAGCTT CAGCAAGCAC CAGTGCGTCA GCCTCAGCAA GTACCAGCGC CTCAGCCTCA	2520
GCAAGCACCA GTGCCTCAGC TTCAGCAAGT ACCAGTGCGT CAGCCTCAGC GTCGACAAGT	2580
GCGTCGGCTT CAGCAAGTAC CTCAGCGTCT GAATCAGCAT CAACGAGTGC ATCAGCTTCA	2640
GCATCAACAA GTGCTTCAGC TTCAGCAAGT ACCAGTGCGT CGGCTTCAGC ATCAACGAGT	2700
GCTTCAGTCT CAGCGTCAAC CAGTGCTCT GAATCAGCAT CAACAAGTGC CTCGGCTTCA	2760
GCAAGCACCA GTGCGTCGGC TTCAGCAAGT ACTAGTGCAT CGGCTTCAGC ATCGACAAGT	2820
GCGTCTGAAT CGGCATCAAC GAGTGCTTCG GCTTCAGCAT CAACGAGTGC GTCAGCCTCA	2880
GCAAGCACAT CAGCTTCTGA ATCTGCATCA ACCAGTGCGT CCGCTTCAGC GTCAACCAGT	2940
GCGTCGGCTT CAGCGTCGAC AAGTGCTTCG GCTTCAGCAT CAACGAGTGC GTCGGCCTCA	3000
GCAAGCGCAA GTACCTCAGC GTCAGCTTCC GCCTCAACCA GTGCGTCCGC TTCAGCAAGC	3060

1378

ACAAGTGGCT CAGCCTCAGC AAGTATCTCA GCGTCTGAAT CGGCATCAAC GAGTGGCTCG	3120
GCCTCAGCAA GCGCAAGTAC CTCAGCGTCA GCTTCCGCCT CAACCAGTGC GTCGGCTTCA	3180
GCAAGCACAA GTGCGTCAGC CTCAGCAAGT ATCTCAGCGT CTGAATCGGC ATCAACGAGT	3240
GCGTCTGAGT CAGCATCAAC GAGTACGTCA GCCTCAGCAA GCACATCAGC TTCTGAATCG	3300
GCATCAACCA GTGCGTCAGC CTCAGCATCG ACAAGCGCCT CAGCTTCAGC AAGTACCAGT	3360
GCTTCAGCCT CAGCGTCGAC AAGTGGCTCG GCCTCAACCA GTGCATCTGA ATCGGCATCA	3420
ACCAGTGGCT CAGCCTCAGC AAGTACTAGT GCATCAGCTT CAGCATCAAC GAGTGCATCG	3480
GCTTCAGCAT CAACCAGTGC CTCGGCTTCA GCGTCAACCA GTGCGTCAGC TTCAGCAAGT	3540
ACCAGTGCTT CAGTCTCAGC ATCAACAAGT GCTTCAGCCT CAGCATCGAC AAGTGCCTCG	3600
GCTTCAGCAA GCACATCAGC ATCTGAATCA GCGTCGACAA GCGCCTCAGC TTCAGCAAGT	3660
ACCAGTGGCT CAGCCTCAGC GTCGACAAGT GCGTCAGCCT CAGCAAGTAC TAGTGCATCA	3720
GCTTCAGCAT CAACGAGTGC ATCGGCTTCG GCGTCAACCA GTGCATCAGA GTCAGCAAGT	3780
ACCAGTGGCT CAGCTTCCGC ATCAACAAGT GCCTCGGCTT CAGCAAGCAC CAGTGGCTCG	3840
GCTTCAGCAA GTACTAGCGC CTCAGCCTCA GCCTCAACCA GTGCGTCAGC CTCAGCAAGT	3900
ATCTCAGCGT CTGAATCGGC ATCAACGAGT GCGTCCGCTT CAGCAAGTAC TAGCGCCTCA	3960
GCCTCAGCGT CAACAAGTGC ATCGGCTTCA GCGTCAACGA GTGCGTCTGA ATCGGCATCA	4020
ACGAGTGGCT CCGCTTCAGC AAGTACTAGC GCCTCAGCCT CAGCGTCAAC AAGTGCATCG	4080
GCTTCAGCAT CAACGAGTGC GTCCGCTTCA GCAAGTACTA GCGCCTCAGC CTCAGCGTCA	4140
ACAAGTGCAT CCGGTTTCAGC GTCAACGAGT GCGTCTGAGT CAGCATCAAC GAGTGGCTCA	4200
CCTCAKCAAG CACATCAGCT TCTGAATCTG CATCAACCAG TGGCTCACTT CCGCATCAAC	4260
AAGCGCCTCG GCCTCAGCAA GTACAAGTGC TTCAGCCTCA GCATCAACCA GTGCATCAGC	4320
TTCAGCCTCA ACAAGTGCTT CAGCCTCAGC GTCAGACCAG TGGCTCGGCT TCAGCAAGTA	4380
CCAGTGGCTC ACTTCAGCAA GCACAAGTGC GTCAGCTTCA GCATCAACCA GTGCTTCGAC	4440
TTCGGCATCA ACAAGTGCCT CAGCATCAGC ATCAACGAGT GCG	4483

(2) INFORMATION FOR SEQ ID NO: 364:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 2550 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 364:

1379

GTACCTCAGC GTCCTTCCGC CTCAACCAGT GCGTCCGCTT CAGCAAGCAC AAGTGCGTCA	60
CCTCAGCAAG TATCTCAGCG TCTGAATCGG CATCAACGAG TCGTCCGCC TCAGCAAGCG	120
CAAGTACCTC AGCGTCACTT CCGCTCAAC CAGTGGCTCG GCTTCAGCAA GCACAAGTGC	180
GTCACTCAG CAAGTATCTC AGCGTCTGAA TCGGCATCAA CGAGTGGCTC TGAGTCAGCA	240
TCAACGAGTA CGTCAGCCTC AGCAAGCACA TCAGCTTCTG AATCGGCATC AACCAGTGCG	300
TCAGCCTCAG CATCGACAAG CGCCTCAGCT TCAGCAAGTA CCAGTGCTTC AGCCTCAGCG	360
TCGACAAGTG CGTCGGCCTC AACCAGTGCA TCTGAATCGG CATCAACCAG TCGTCAGCC	420
TCAGCAAGTA CTAGTGATC AGCTTCAGCA TCAACGAGTG CATCGGCTTC AGCATCAACC	480
AGTGCCTCGG CTTACGCTC AACCAGTGCG TCAGCTTCAG CAAGTACCAG TGCTTCAGTC	540
TCAGCATCAA CAAGTGCTTC AGCCTCAGCA TCGACAAGTG CCTCGGCTTC AGCAAGCACA	600
TCAGCATCTG AATCAGCGTC GACAAGTGCG TCGGCTCAA CCAGTGATC TGAATCGGCA	660
TCAACCAGTG CGTCAGCCTC AGCAAGTACT AGTGATCAG CTTACGATC AACGAGTGCA	720
TCGGCTTCGG CGTCAACCAG TGCATCAGAG TCAGCAAGTA CCAGTGCGTC AGCTTCGCA	780
TCAACAAGTG CCTCGGCTTC AGCAAGCACA TCAGCATCTG AATCAGCGTC AACCAGTGCT	840
TCGGCTTCAG CAAGTACCAG TGCTTCAGCT TCAGCATCAA CCAGCGCCTC GGCCTCAGCA	900
AGCACCTCAG CTTCTGAATC GGCCTCAACC AGCGCTCGG CCTCAGCAAG CACCTCAGCT	960
TCTGAATCGG CCTCAACCAG CGCCTCAGCC TCAGCATCAA CGAGTGCTTC GGCTTCAGCA	1020
AGCACAAGCG CCTCGGCTTC AGCATCAACG AGTACGTCAG CTTACGCTC AACCAGTGCT	1080
TCAGCCTCAG CATCAACAAG TCGTCAGCC TCAGCAAGTA TCTCAGCGTC TGAATCGGCA	1140
TCAACGAGTG CGTCTGAGTC AGCATCAACG AGTACGTCAG CCTCAGCAAG CACAAGTGCT	1200
TCAGCCTCAG CAAGTATCTC AGCGTCTGAA TCGGCATCAA CGAGTGGCTC CGCTTCAGCA	1260
AGTACTAGCG CCTCAGCATC AGCGTCAACA AGTGCTTCGG CTTACGCTC AACGAGTGCG	1320
TCTGAGTCAG CATCAACGAG TACGTCAGCC TCAGCAAGCA CATCAGCTTC TGAATCTGCA	1380
TCAACCAGTG CGTCAGCCTC AGCATCGACA AGCGCTCAG CTTACGCAAG TACCAGTGCG	1440
TCAGCCTCAG CAAGTACCAG TGCTTCAGCC TCAGCGTCGA CAAGTGCGTC GGCCTCAACC	1500
AGTGATCTG AATCGGCATC AACCAGTGCG TCAGCTCAGC AAGTACTAGT GCATCAGCTT	1560
CAGCATCAAC GAGTGATCG GCTTCGGCGT CAACCAGTGC ATCAGAGTCA GCAAGTACCA	1620
GTGCGTCACT TCCGCATCAA CAAGTGCTC GGCTTCAGCA AGCATCAG CATCTGAATC	1680
AGCGTCAACC AGTGCTTCGG CTTACAGCAAG TACCAGTGCT TCAGCTTCAG CATCAACCAG	1740

1380

CGCCTCGGCC TCAGCAAGCA CCTCAGCTTC TGAATCGGCC TCAACCAGCG CCTCGGCCTC	1800
AGCAAGCACC TCAGCTTCTG AATCGGCCTC AACCAGCGCC TCAGCCTCAG CATCAACGAG	1860
TGCTTCGGCT TCAGCAAGCA CAAGCGCCTC GGGTTCAGCA TCAACGAGTA CGTCAGCTTC	1920
AGCGTCAACC AGTGCTTCAG CCTCAGCATC AACAAAGTGG TCAGCCTCAG CAAGTATCTC	1980
AGCGTCTGAA TCGGCATCAA CGAGTGCCTC TGAGTCAGCA TCAACGAGTA CGTCAGCCTC	2040
AGCAAGCACC TCAGCTTCTG AATCGGCCTC AACCAGTGGC TCAGCCTCAG CATCGACAAG	2100
CGCCTCAGCT TCAGCAAGTA CCAGTGCTTC AGCCTCAGCG TCGACAAGTG CGTCGGCCTC	2160
AACCAGTGCA TCTGAATCGG CATCAACCAG TGCCTCAGCC TCAGCAAGTA CTAGTGCATC	2220
GGCTTCAGCA TCAACCAGTG CCTCGGCTTC AGCGTCAACC AGTGCGTCAG CTTAGCAAG	2280
TACCAGTGCT TCAGTCTCAG CATCAACAAG TGCTTCAGCC TCAGCATCGA CAAGTGCTC	2340
GGCTTCAGCA AGCACATCAG CATCTGAATC AGCGTCGACA AGCGCCTCAG CTTAGCAAG	2400
TACCAGTGCG TCAGCCTCAG CGTCGACAAG TGCCTCAGCT ACAGCAAGTA CTAGTGCATC	2460
AGCTTCAGCA TCAACGAGTG CATCGGCTTC GGCCTCAACC AGTGCATCAG AGTCAGCAAG	2520
TACCAGTGCG TCAGTTCACG CATCAACAAG	2550

## (2) INFORMATION FOR SEQ ID NO: 365:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1436 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 365:

ACCCAGCAAG TACTAGTGCA TCGGCTTCAG CAAGCACCAG TCGCTCGGCT TCAGCATCAA	60
CCAGTGCCTC AGCCTCAGCA AGTATCTCAG CGTCTGAATC GGCATCAACG AGTGCGTCAC	120
CTCAGCAAGT ACTAGTGCAT CAGCATCAGC ATCAACGAGT GCATCGGCTT CAGCAAGTAC	180
CAGCGCCTCA GCTTCAGCAA GCACCAGTGC GTCAsCTCAG CAAGTACCAG CGCCTCAGCC	240
TCAGCAAGCA CCAGTGCCTC AGCTTCAGCA AGTACCAGTG CGTCAGCCTC AGCGTCGACA	300
AGTGCGTCGG CTTAGCAAG TACCTCAGCG TCTGAATCAG CATCAACGAG TGCATCAGCT	360
TCAGCATCAA CAAGTGCTTC AGCTTCAGCA AGTATCTCAG CGTCTGAATC GGCATCAACG	420
AGTGCGTCCG CTTAGCAAG TACTAGCGCC TCAGCATCAG CGTCAACAAG TGCTTCGGCT	480
TCAGCGTCAA CGAGTGCCTC TGAGTCAGCA TCAACGAGTA CGTCAGCCTC AGCAAGCACA	540
TCAGCTTCTG AATCTGCATC AACCAGTGGC TCAGCCTCAG CATCGACAAG CGCCTCAGCT	600

1381

TCAGCAAGTA CCAGTGCCTC AgCCTCAGCA AGTACCAGTG CTTCAGCCTC AGCGTCGACA	660
AGTGCGTCGG CCTCAACCAG TGCATCTGAA TCGGCATCAA CCAGTGCCTC AGCCTCAGCA	720
AGTACTAGCG CCTCAGCCTC AGCATCAACG AGTGCGTCCG CTTCAGCAAG TACTAGTGCA	780
TCAGCTTCAG CAAGTACTAG CGCCTCAGCC TCAGCGTCGA CAAGCGCCTC AGCTTCAGCA	840
AGTACCAGTG CGTCAGCCTC AGCGTCGACA AGTGCGTCCG CTTCAGCAAG TACCTCAGCG	900
TCTGAATCAG CATCAACAAG TCGCTCGGCT TCAGCATCAA CGAGTGCATC AGCTTCAGCA	960
TCAACAAGTG CTTCAGCTTC AGCAAGTACC AGTGCGTCCG CTTCAGCATC AACGAGTGCT	1020
TCAGTCTCAG CGTCAACCAG TGCTCTGAA TCCGCATCAA CAAGTGCCTC GGCTTCAGCA	1080
AGCACCAGTG CTTGGGCTTC AGCGTCAACG AGTGCGTCTG AGTCAGCATC AACGAGTGCG	1140
TCAGCCTCAG CAAGCACATC AGCTTCTGAA TCTGCATCAA CCAGTGCCTC AGCTTCGCA	1200
TCAACAAGCG CCTCGGCCTC AGCAAGTACA AGTGCTTCAG CTTCAGCATC AACCAGTGCA	1260
TCAGCTTCAG CCTCAACAAG TGCTTCAGCC TCAGCGTCAA CCAGTGCCTC GGCTTCAGCA	1320
AGTACCAGTG CGTCAGCTTC AGCAAGCACA AGTGCGTCAG CTTCAGCATC AACCAGTGCT	1380
TCGGCTTCGG CATCAACAAG TGCTTCAGCA TCAGCATCAA CGAGTGCCTC AGCCGG	1436

(2) INFORMATION FOR SEQ ID NO: 366:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 735 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 366:

GCAGTTGCCA CACCGTGCTG ACCAGCACCC GTTCTGCGA TAATTTTCTT TTTACCCATG	60
CGTWTGGCAA GCCAAACTTG TCCTAAGGCA TTGTTAATCT TGTGGGCTCC TGTATGGTTA	120
AGGTCTTCCC GTTTGAGATA AATCTTGCTC CGCCAATATG CTGGGTCAAG TTTTTTGCGT	180
AATAAAGAGG AGTTTCACGT CCTACGTACT GGCGCAAAAG CTGGTTTAAT TCCTCTTGGA	240
AACCTGGGTC TGCTGACTT TCACGGTAGG CCTTCTCCAA CTCCAAACT GCTGTCATCA	300
ATGTTTCTGG GACAAAACGT CCGCCGAATT TTCCGTAAAA TCCATCTTTA TTTGGTTCCT	360
GATATGCCAT GCTTTACCCT CTCTATAAAT CTTCTAATCT TTTCATGATC TTTTGTCCA	420
TCTGTCTCCA CTCCGCTCGA TACATCTACT GCATAGGGAG TAAAGTGTTG AATTGCTTTT	480
ACTACATTAT CTTCAATTAAG GCCACCTGCG ATAAAGAAGG GCTGTGCTAG TCCAGTCGTA	540

1382

TCCAGTTGAC	CCCAATCAAA	GGGCTGGCCA	CTTCCTGCCA	CAGGGGCATC	AAAGAGTAGA	600
TAATCTGCCT	GAGAATTGGG	GACATGCCCC	TTTCATCTA	CCTGCACAGC	CTGAATACTG	660
GCACAAGGCA	AATTCTCAAA	TAAATCATCT	GCCACCTGAC	CGTGAACCTG	AACCAAGTCC	720
AAGCCGGGGA	TCCTC					735

## (2) INFORMATION FOR SEQ ID NO: 367:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1702 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 367:

TACTAGCGCC	TCAGCCTCAG	CGTCAACAAG	TGCATCGGCT	TCAGCATCAA	CGAGTGCCTC	60
CGCTTCAGCA	AGTACTAGCG	CCTCAGCCTC	AGCGTCAACA	AGTGCATCGG	CTTCAGCGTC	120
AACGAGTGCG	TCTGAGTCAG	CATCAACGAG	TGCGTCAGCC	TCAGCAAGCA	CATCAGCTTC	180
TGAATCTGCA	TCAACCAGTG	CGTCAGCCTC	AGCATCGACA	AGCGCCTCAG	CTTCAGCAAG	240
TACCAGTGCG	TCAGCCTCAG	CGTCGACAAG	TGCGTCGGCT	TCAGCAAGTA	CCAGTGCCTC	300
AGCCTCAGCA	AGTACCAGTG	CGTCAGCCTC	AGCGTCGACA	AGTGCCTCGG	CCTCAACCAG	360
TGCATCTGAA	TCGGCATCAA	CCAGTGCCTC	AGCCTCAGCA	AGTACTAGTG	CATCAGCTTC	420
AGCATCAACG	AGTGCATCGG	CTTCAGCATC	AACCAGTGCA	TCAGAGTCAG	CAAGTACCAG	480
TGCGTCAGCT	TCCGCATCAA	CAAGTGCCCTC	GGCTTCAGCA	AGTACTAGCG	CCTCAGCCTC	540
AGCGTCAACA	AGTGCTTCAG	CTTCGCGCTC	AACCAGCGCC	TCGGCCTCAG	CAAGTATCTC	600
AGCGTCTGAA	TCGGCATCAA	CAAGTGCCCTC	GGCTTCAGCA	TCAACGAGTG	CATCAGTCTC	660
AGCAAGCACC	AGTGCGTCGG	CCTCAGCAAG	CACCAGCGCG	TCTGAATCCG	CATCAACCAG	720
TGCCTCAGCT	TCAGCAAGTA	CCTCAGCATC	TGAATCAGCA	TCAACAAGTG	CATCGGCTTC	780
AGCAAGCACA	AGTGCTTCAG	CCTCAGCAAG	TATCTCAGCG	TCTGAATCGG	CATCAACGAG	840
TGCGTCCGCT	TCAGCAAGTA	CTAGCGCCTC	AGCATCAGCG	TCAACAAGTG	CTTCGGCTTC	900
AGCGTCAACG	AGTGCGTCTG	AGTCAGCATC	AACGAGTACG	TCAGCCTCAG	CAAGCACATC	960
AGCTTCTGAA	TCTGCATCAA	CCAGTGCCTC	AGCCTCAGCA	TCGACAAGCG	CCTCAGCTTC	1020
AGCAAGTACC	AGTGCGTCAG	CCTCAGCAAG	TACCAGTGCT	TCAGCCTCAG	CGTCGACAAG	1080
TGCGTCCGCC	TCAACCAGTG	CATCTGAATC	GGCATCAACC	AGTGCGTCAG	CCTCAGCAAG	1140
TACTAGCGCC	TCAGCCTCAG	CATCAACGAG	TGCGTCCGCT	TCAGCAAGTA	CTAGTGCATC	1200

1383

AGCATCAGCA TCAACGAGTG CATCGGCTTC AGCAAGTACC AGCGCCTCAG CTTCAGCAAG	1260
CACCAAGTGCG TCAGCCTCAG CAAGTACCAG CGCCTCAGCC TCAGCAAGCA CCAGTGCCTC	1320
AGCTTCAGCA AGTACCAGTG CGTCAGCCTC AGCGTCGACA AGTGCGTCGG CTTCAGCAAG	1380
TACCTCAGCG TCTGAATCAG CATCAACGAG TGCATCAGCT TCAGCATCAA CAAGTGCTTC	1440
AGCTTCAGCA AGTACCAGTG CGTCGGCTTC AGCATCAACG AGTGCTTCAG TCTCAGCGTC	1500
AACCAAGTGCC TCTGAATCAG CATCAACAAG TGCCTCGGCT TCAGCAAGCA CCAGTGCCTC	1560
GGCTTCAGCA AGTACTAGTG CATCGGCTTC AGCATCGACA AGTGCGTCTG AATCGGCATC	1620
AACGAGTGCT TCGGCTTCAG CATCAACGAG TCGCTCAGCC TCAGCAAGCA CATCAGCTTC	1680
TGAATCTGCA TCAACCAAGTG CG	1702

## (2) INFORMATION FOR SEQ ID NO: 368:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 941 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 368:

ACCAAGTGCAT CAGCTTCAGC CTCAACAAGT GCTTCAGCCT CAGCGTCAAC CAGTGCCTCG	60
GCTTCAGCAA GTACCAAGTG GTCACCTCAG CAAGCACAAG TCGGTCACTT CAGCATCAAC	120
CAGTGCTTCG GCTTCGGCAT CAACAAGTGC CTCAGCATCA GCATCAACGA GTGCGTCACC	180
TCAGCAAGTA CTAGTGCATC AGCATCAGCA TCAACCAAGTG CATCAGCCTC AGCAAGTATC	240
TCAGCGTCTG AATCGGCATC AACGAGTGCA TCAGCATCAG CATCAACGAG TGCATCGGCT	300
TCAGCGTCAA CCAGTGCATC AGTCTCAGCA AGCACCAGTG CGTCGGCTTC AGCATCAACG	360
AGTGCTTCAG CCTCAGCAAG TATCTCAGCG TCTGAATCGG CATCAACGAG TGCCTCAGCC	420
TCAGCAAGTA CTAGTGCATC GGCTTCAGCA AGCACCAGTG CGTCGGCTTC AGCATCAACC	480
AGTGCTTCAG CCTCAGCAAG TATCTCAGCG TCTGAATCGG CATCAACGAG TGCCTCAGCC	540
TCAGCAAGTA CTAGTGCATC AGCATCAGCA TCAACCAAGTG CATCGGCTTC AGCAAGTACC	600
AGCGCCTCAG CTTCAGCAAG CACCAAGTGCG TCAGCCTCAG CAAGTACCAG CGCCTCAGCC	660
TCAGCAAGCA CCAGTGCCTC AGCTTCAGCA AGTACCAGTG CGTCAGCCTC AGCGTCGACA	720
AGTGCGTCGG CTTCAGCAAG TACCTCAGCG TCTGAATCAG CATCAACGAG TGCATCAGCT	780
TCAGCATCAA CAAGTGCTTC AGCTTCAGCA AGTACCAGTG CGTCGGCTTC AGCATCAACG	840

1384

AGTGCTTCAG TCTCAGCGTC AACCAGTGCC TCTGAATCAG CATCAACAAG TGCCTCGGCT	900
TCAGCAAGCA CCAGTGCCTC GGCTTCAGCA AGTACTAGTG C	941

(2) INFORMATION FOR SEQ ID NO: 369:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 869 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 369:

CAGCAAGTAC TAGTGCATCA GCTTCAGCAT CAACGAGTGC ATCGGCTTCT GCGTCAACCA	60
GTGCATCAGA GTCAGCAAGT ACCAGTGCCT CAGCTTCCGC ATCAACAAGT GCCTCGGCTT	120
CAGCAAGCAC CAGTGCCTCG GCTTCAGCAA GTACTAGCGC CTCAGCCTCA GCCTCAACCA	180
GTGCGTCAGC CTCAGCAAGT ATCTCAGCGT CTGAATCGGC ATCAACGAGT GCGTCCGCTT	240
CAGCAAGTAC TAGCGCCTCA GCCTCAGCGT CAACAAGTGC ATCGGCTTCA GCGTCAACGA	300
GTGCGTCTGA ATCGGCATCA ACGAGTGCCT CCGCTTCAGC AAGTACTAGC GCCTCAGCCT	360
CAGCGTCAAC AAGTGCATCG GCTTCAGCAT CAACGAGTGC GTCCGCTTCA GCAAGTACTA	420
GCGCCTCAGC CTCAGCGTCA ACAAGTGCAT CGGCTTCAGC GTCAACGAGT GCGTCTGAGT	480
CAGCATCAAC GAGTGCCTCA GCCTCAGCAA GCACATCAGC TTCTGAATCT GCATCAACCA	540
GTGCGTCAGC CTCAGCATCG ACAAGCGCCT CAGCTTCAGC AAGTACCACT GCGTCAGCCT	600
CAGCGTCGAC AAGTGCCTCG GCTTCAGCAA GTACCACTGC GTCAGCCTCA GCAAGTACCA	660
GTGCGTCAGC CTCAGCGTCT ACAAGTGCCT CGGCCTCAAC CAGTGCATCT GAATCGGCAT	720
CAACCAGTGC GTCAGCCTCA GCAAGTACTA GTGCATCAGC TTCAGCATCA ACGAGTGCAT	780
CGGCTTCAGC ATCAACCAGT GCATCAGAGT CAGCAAGTAC CAGTGCCTCA GNTTCCGCAT	840
GCAACAAGTG CTTCCGCTTC AGCAAGTAC	869

(2) INFORMATION FOR SEQ ID NO: 370:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 750 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 370:

TCAACAAGTG CCTCAGCATC AGCATCAACG AGTGCCTCAG CCTCAGCAAG TACTAGTGCA	60
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1385

TCAGCATCAG CATCAACCAG TGCATCAGCC TCAGCAAGTA TCTCAGCGTC TGAATCGGCA	120
TCAACGAGTG CATCAGCATC AGCATCAACG AGTGCATCGG CTTCAGCGTC AACCAGTGCA	180
TCAGTCTCAG CAAGCACCAG TGCCTCGGCT TCAGCATCAA CGAGTGCCTC AGCCTCAGCA	240
AGTATCTCAG CGTCTGAATC GGCATCAACG AGTGCCTCAG CCTCAGCAAG TACTAGTGCA	300
TCGGCTTCAG CAAGCACCAG TGCCTCGGCT TCAGCATCAA CCAGTGCCTC AGCCTCAGCA	360
AGTATCTCAG CGTCTGAATC GGCATCAACG AGTGCCTCAG CCTCAGCAAG TACTAGTGCA	420
TCAGCATCAG CATCAACGAG TGCATCGGCT TCAGCAAGTA CCAGCGCCTC AGCTTCAGCA	480
AGCACCAGTG CGTCAGCCTC AGCAAGTACC AGCGCCTCAG CCTCAGCAAG CACCAGTGCC	540
TCAGCTTCAG CAAGTACCAG TGCCTCAGCC TCAGCGTCGA CAAGTGCCTC GGCTTCAGCA	600
AGTACCTCAG CGTCTGAATC AGCATCAACG AGTGCATCAG CTTCAGCATC AACAAGTGCT	660
TCAGCTTCAG CAAGTATCTC AGCGTCTGAA TCGGCATCAA CGAGTGCCTC CGCTTCAGCA	720
AGTACTAGCG CCTCAGCATC AGCGTCAACG	750

(2) INFORMATION FOR SEQ ID NO: 371:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 957 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 371:

CCGGAACA GCTCTGGCGC TTGCTCTTGC CCAGCGTATT GCTAGTGGTG ACGTGCCTGC	60
GGAAATGGCT AAGATGCCCG TGTTAGAACT TGATTGATG AATGTCGTTG CAGGGACACG	120
CTTCCGTGGT GACTTTGAAG AACGCATGAA TAATATCATC AAGGATATTG AAGAAGATGG	180
CCAAGTCATC CTCTTTATCG ATGAACTCCA CACCATCATG GGTTCCTGTA GCGGGATTGA	240
TTGACTCTG GATGCGGCCA ATATCTTGAA ACCAGCCTTG GCGCGTGGAA CTTTGAGAAC	300
GGTTGGTGCC ACTACTCAGG AAGAATATCA AAAACATATC GAAAAAGATG CGGCACTTTC	360
TCGTCGTTTC GCTAAAGTGA CGATTGAAGA ACCAAGTGTG GCAGATAGTA TGACTATTTT	420
ACAAGGTTTG AAGGCGACTT ATGAGAAACA TCACCGTGTA CAAATCACAG ATGAAGCGGT	480
TGAAACAGCG GTTAAGATGG CTCATCGTTA TTAAACAGT CGTCACTTGC CAGACTCTGC	540
TATCGATCTC TTGGATGAGG CGGCAGCAAC AGTGCAAAAT AAGGCAAAGC ATGTAAAAGC	600
AGACGATTCA GATTGAGTC CAGCTGACAA GGCCCTGATG GATGGCAAGT GGAAACAGGC	660

1386

AGCCCAGCTA ATCGCAAAAG AAGAGGAAGT ACCTGTCTAC AAAGACTTGG TGACAGAGTC	720
TGATATTTTG ACCACCTTGA GTCGCTTGTC AGGAATCCCA GTTCAAAAAC TGA CTCAAAC	780
GGATGCTAAG AAGTATTTAA ATCTTGAAGC AGAACTCCAT AAACGGGTTA TCGGTCAAGA	840
TCAAGCTGTT TCAAGCATTG GCCGTGCCAT TCGCCGCAAC CAGTCAGGGA TTCGCAGTCA	900
TAAGCGTCCG ATTGGTTCCT TTATGTTCTT AGGGCCTACA GGTGTCGGGG TATCCGA	957

## (2) INFORMATION FOR SEQ ID NO: 372:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 807 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 372:

CAAAGCGCCT CAGCTTCAGC ATCAACAAGT GCGTCGGCTT CAGCATCAAC CAGTGCCTCG	60
GCTTCAGCGT CAACCAGTGC GTCACATTCA GCAAGTACCA GTGCTTCAGT CTCAGCATCA	120
ACAAGTGCTT CAGCCTCAGC ATCGACAAGT GCCTCGGCTT CAGCAAGCAC ATCAGCATCT	180
GAATCAGCGT CAACCAGTGC TTCGGCTTCA GCAAGTACCA GTGCTTCAGC TTCAGCATCA	240
ACCAGCGCCT CGGCCTCAGC AAGCACCTCA GCTTCTGAAT CGGCCTCAAC CAGCGCCTCG	300
GCCTCAGCAA GCACCTCAGC TTCTGAATCG GCCTCAACCA GCGCCTCAGC CTCAGCATCA	360
ACGAGTGCTT CGGCTTCAGC AAGCACAAGC GCCTCGGGTT CAGCATCAAC GAGTACGTCA	420
GCTTCAGCGT CAACCAGTGC TTCAGCCTCA GCATCAACAA GTGCGTCAGC CTCAGCAAGT	480
ATCTCAGCGT CTGAATCGGC ATCAACGAGT GCGTCTGAGT CAGCATCAAC GAGTACGTCA	540
GCCTCAGCAA GCACCTCAGC TTCTGAATCG GCCTCAACCA GTGCGTCAGC CTCAGCATCG	600
ACAAGCGCCT CAGCTTCAGC AAGTACCAGT GCTTCAGCCT CAGCGTCGAC AAGTGCCTCG	660
GCCTCAACCA GTGCATCTGA ATCGGCATCA ACCAGTGCCT CAGCCTCAGC AAGTACTAGT	720
GCATCGGCTT CAGCATCAAC CAGTGCCTCG GCTTCAGCGT CAACCAGTGC GTCAGCTTCA	780
GCAAGTACCA TGTGCTTCAT GTCTCAG	807

## (2) INFORMATION FOR SEQ ID NO: 373:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1068 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

1387

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 373:

CATCGGCTTC AGCATCAACG AGTGGCTCCG CTTCAGCAAG TACTACCGCC TCAGCCTCAG	60
CGTCAACAAG TGCATCGGCT TCAGCGTCAA CGAGTGGCTC TGAGTCAGCA TCAACGAGTG	120
CGTCACCTCA GCAAGCACAT CAGCTTCTGA ATCTGCATCA ACCAGTGGCT CACCTCAGCA	180
TCGACAAGCG CCTCAGCTTC AGCAAGTACC AGTGGCTCAC CTCAGCGTCG ACAAGTGGCT	240
CGGCTTCAGC AAGTACCAGT GCGTCAsCTC AGCAAGTACC AGTGGCTCAC CTCAGCGTCG	300
ACAAGTGGCT CGGCCTCAAC CAGTGCATCT GAATCGGCAT CAACCAAGTGC GTCACCTCAG	360
CAAGTACTAG TGCATCAGCT TCAGCATCAA CGAGTGCATC GGCTTCAGCA TCAACCAAGTG	420
CATCAGAGTC AGCAAGTACC AGTGGCTCAG CTTCGGCATC AACAAGTGCC TCGGCTTCAG	480
CAAGTACTAG CGCCTCAGCC TCAGCGTCAA CAAGTGCTTC AGCTTCCGGC TCAACCAAGCG	540
CCTCGGCCTC AGCAAGTATC TCAGCGTCTG AATCGGCATC AACAAGTGCC TCGGCTTCAG	600
CATCAACGAG TGCATCAGTC TCAGCAAGCA CCAGTGGCTC GGCCTCAGCA AGCACCAGCG	660
CGTCTGAATC CGCATCAACC AGTGCCTCAG CTTCAGCAAG TACCTCAGCA TCTGAATCAG	720
CATCAACAAG TGCATCGGCT TCAGCAAGCA CAAGTGCTTC AGCCTCAGCA AGTATCTCAG	780
CGTCTGAATC GGCATCAACG AGTGGCTCCG CTTCAGCAAG TACTAGCGCC TCAGCATCAG	840
CGTCAACAAG TGCTTCGGCT TCAGCGTCAA CGAGTGGCTC TGAGTCAGCA TCAACGAGTA	900
CGTCAGCCTC AGCAAGCACA TCAGCTTCTG AATCTGCATC AACCAGTGGC TCAGCCTCAG	960
CATCGACAAG CGCCTCAGCT TCAGCAAGTA CCAGTGGCTC AGCCTCAGCA AGTACCAGTG	1020
CTTCAGCCTC AGCGTCGACA AGTGGCTCGG GCTCAACCAG TGCATCTG	1068

## (2) INFORMATION FOR SEQ ID NO: 374:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 620 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 374:

CAGCATCAAC GAGTGCTTCA GTTTCAGCGT CAACCAAGTG CTCTGAATCA GCTTCAACAA	60
GTGCCTCGGC TTCAGCAAGC CCCAGTGGCT CGGCTTCAGC AAGTACTAGT GCATCGGCTT	120
CAGCATCGAC AAGTGGCTCT GAATCGGCAT CAACGAGTGC TTCGGCTTCA GCATCAACGA	180
GTGGCTCAGC CTCAGCAAGC ACATCAGCTT CTGAATCTGC ATCAACCAGT GCGTCCGyTT	240

1388

CAGCGTCAAC CAGTGGCTCG GCTTCAGCGT CGACAAGTGC TTCGGCTTCA GCATCAACGA	300
GTGCGTCGGC CTCAGCAAGC GCAAGTACCT CAGCGTCAGC TTCCGCCTCA ACCAGTGCCT	360
CGGCTTCAGC AAGCACAAGT GCGTCAGCCT CAGCAAGTAT CTCAGCGTCT GAATCGGCAT	420
CAACGAGTGC GTCTGAGTCA GCATCAACGA GTACGTCAGC CTCAGCAAGC ACATCAGCTT	480
CTGAATCTGC ATCAACCAGT GCGTCAGCCT CAGCATCGAC AAGCGCCTCA GCTTCAGCAA	540
GTACCACTGC TTCAGCCTCA GCGTCGACAA GTGCGTCGGC CTCGAACCAGT GCATCTGAAT	600
CGGCATCAAC CAGTGGCTCA	620

(2) INFORMATION FOR SEQ ID NO: 375:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 720 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 375:

GTATTGGGGC GCCCCAACCT CTATGTGACT ACGGATTATT TCCTAGATTA CATGGGGATA	60
AACCATTAG AAGAATTACC AGTGATTGAT GAGCTTGAGA TTCAAGCCCA AGAAAGCCAA	120
TTATTTGGTG AAAGGATAGA AGAAGATGAG AATCAATAAG TATATTGCCC ACGCAGGTGT	180
GGCCAGTAGG AGAAAAGCAG AAGAGCTGAT TAAGCAAGGC TTGGTGACGG TTAACGGCCA	240
AGTGGTGGCT GAACTAGCAA CCACTATCAA GTCAGGCGAC AAGTCGAAG TTGAAGGTCA	300
ACCTATCTAC AACGAAGAAA AGGTCTACTA TCTGCTTAAC AAACCACGGG GTGTGATTTC	360
CAGTGTGACA GATGATAAGG GTCGCAAGAC GGTGTGCGAC CTCTTGCCCA ATGTCAAAGA	420
GCGTATTAC CCTGTGGGTC GTTTGGACTG GGATACATCA GGTGTCTTGA TTTTGACCAA	480
TGATGGGGAC TTTACAGACG AGATGATTCA CCCTCGTAAT GAGATTGACA AGGTTTATGT	540
CGCGCGTGTT AAAGGTGTGG CCAATAAGGA CAATCTCCGC CCCTTGACCC GTGGTCTTGA	600
GATTGATGGT AAGAAAACCA AGCCATAATA TATAGGTTTT GTAGCCTCTA CACCATAAAT	660
ATTTGCTAAT AAAAATACTG TATTATTACC CTCTTAAGGT GCGAAATTAT TCAAGTTCTT	720

(2) INFORMATION FOR SEQ ID NO: 376:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 648 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

1389

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 376:

CGCCATTTCC CATCGTACCG CCGAAAATCC CAGCGCCTCA GCCATCAAAT ATCCTATCAA	60
CGTTCTCAAA AAAAGTGACC GCTCTCTCAT CATGTTTCCA AGTGGTAGCC GCCACTCAAA	120
CGATGTCAAG GGGGGCGCAC ACTskATTGC CAAAATGGCC AAGGTCCGTA TCATGCCGGT	180
TACCTACACC GGTCCCATGA CTTTGAAGGG CTTGATTAGC CGTGAACGTG TCGATATGAA	240
CTTTGGAAAT CCAATCGATA TCTCAGATAT CAAGAAAATG AATGATGAAG GCATTGAAAC	300
AGTCGCCAAT CGTATTCAAA CAGAATTCCA ACGTCTGGAC GAAGAAACGA AACAATGGCA	360
CAATGATAAA AAACCAAATC CACTCTGGTG GTTTATCCGC ATCCCTGCCC TCATCCTTGC	420
TATTATCCTC GCTATCCTAA CCATCATCTT TAGCTTTATC GCAAGCTTCA TCTGGAACCC	480
AGATAAGAAA AGAGAAGAAC TTGCATAGAA GAAATGAACC TTGGCCAAAC AGCTAAGGTT	540
TTCATTTATA TAGTAGATTG GwACTAGAAT AGTACACCTC TACTTCTAAA ACATTTTATG	600
AAATCGATTT GACTGTCCTG ATCGATTTGT CCTAATCTTA TTTCAATT	648

## (2) INFORMATION FOR SEQ ID NO: 377:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 690 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 377:

GTGCATCGCT TTCAGCATCG ACAAGTCCGT CTGAATCGGC ATCAACGAGT GCTTCGGCTT	60
CAGCATCAAC GAGTGCCTCA GCTTCAGCAA GCACATCAGC TTCTGAATCT GCATCAACCA	120
GTGCGTCCGC TTCAGCGTCA ACCAGTCCGT CGGCTTCAGC GTCGACAACT GCTTCGGCTT	180
CAGCATCAAC GAGTGCCTCG GCCTCAGCAA GCGCAAGTAC CTCAGCGTCA GCTTCGCTT	240
CAACCAGTGC GTCCGCTTCA GCAAGCACAA GTGCGTCAGC CTCAGCAAGT ATCTCAGCGT	300
CTGAATCGGC ATCAACGAGT GCGTCGGCCT CAGCAAGCGC AAGTACCTCA GCGTCAGCTT	360
CCGCCTCAAC CAGTGCCTCG GCTTCAGCAA GCACAAGTGC GTCAGCCTCA GCAAGTATCT	420
CAGCGTCTGA ATCGGCATCA ACGAGTCCGT CTGAGTCAGC ATCAACGAGT ACGTCAGCCT	480
CAGCAAGCAC ATCAGCTTCT GAATCGGCAT CAACCAGTGC GTCAGCCTCA GCATCGACAA	540
GCGCCTCAGC TTCAGCAAGT ACCAGTGCTT CAGCCTCAGC GTCGACAACT GCGTCGGCCT	600
CAACCAGTGC ATCTGAATCG GCATCAACCA GTGCGTCAGC CTCAGCAAGT ACTAGTCAT	660

CAGCTTCAGC ATCAACGAGT GCATCGGCTT 1390 690

(2) INFORMATION FOR SEQ ID NO: 378:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 1003 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 378:

CGAGATTCTC TGGAGTTATG GATGTCGTTT CAATATGTGC ACGTTGGAAT GTTAGTGCTT 60  
ATATGGGGGG AACAGAATCC TCTCTTGATT GAAGACAAGC TAGTCATTAG GCTGGTTTGT 120  
CTTTTGTCA ACTGTAGTGG GTTGATATAA TAGTATTAGT GAGTGGGATA AAAGTTTCAT 180  
TTAGTTTATT CAGTACAAAT TTAACGGGTC AAGATTTATA TACTAGTGGT GTTTTGGGG 240  
CTGAGAGAAG TATCTTGATT TTATGTGTGG TTTTATACT TACAGTTGTT CTGCTCCAAA 300  
GAGCTTGTAG AGAAGAATTA GCTCATAAAG GAGATTGATT ATTTTGATAT CAAAAAATG 360  
CACAGGATAA CCTGATGCAT TTTTGTAGCG ACAATGCTTG CTACTTCCTT CTGTCGAATT 420  
TAGACAATTT TAAACCCCAA TTATTCACCC CAAATCTAAA AACCATCCAG AATCCTTGCC 480  
TTAGCTTAGA TCCTGGATGG TTTCTTTTTC CACCCAATGG GTGTTTTTTA CTAGACAAAA 540  
AAGAGTTTCC CCTTTATGGT ATAAGTGTAG AAAAAAACAC AAAAAGAAAG GAAACTCACA 600  
TGAACAGTTT ACCAAATCAT CACTTCCAAA ACAAGTCTTT TTACCAACTA TCTTTCGATG 660  
GAGGTCATTT AACCCAGTAT GGTGGTCTTA TCTTTTTC GGAACTTTTT TCCCAGTTGA 720  
AACTAAAAGA GCGGATTCTT AAGTATTTAG TAACGAATGA CCAACGCCGC TACTGTCGTT 780  
ATTCGGATTG AGATATCCTT GTCCAGTTCC TCTTCAACT GTTAACAGGT TATGGAACGG 840  
ACTATGCTTG TAAAGAATTG TCAGCTGATG CCTACTTTC AAAATTATTG GAAGGAGGGC 900  
AGCTTGCTTC ACAGCCAACC TTATCCCGTT TTCTTCCAG AACTGACGAG GAAACAGTCC 960  
ATAGTTTGCG ATGCCTCAAC CTTGAATTGG TCGAATTCTT TTT 1003

(2) INFORMATION FOR SEQ ID NO: 379:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 738 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 379:

1391

CCGATGATTC TGATTGGTTT GCTCTTTACT TTGCTGGGAA TTTTGAGGTA GATCTATGAT	60
TGAAATACTA ATTGTTTTAG CTATTATCCT ATCTCTTGCT TTGATTGTAT TGGTAACTAT	120
ACAACCCCGT CAAAATCAAC TATTTTCCAT GGATGCCACT AGTAATATTG GTAAACCAAG	180
CTACTGGCAG AGCAACACCT TGGTCAAGGT GCTCACTTTA TTGGTGAGTT TGGCTTTATT	240
TATTCTACTA TTAACCTTTA TGGTGATTAC TTATAAATAA AAGAAAACCT CAGATATTCA	300
<u>CCTTTTGTGG ATTGGTCTGA AGTTTTCTTT TTTATACTCA ATGAAAATCA AAGACCAAAC</u>	360
TAGGAAGCTA GCCGCAcKGC TCAAAACACC GTTTTGAGGT TGTAGATATA ACTGACGAGc	420
GACTCAAAAC ACCGTTTTGA GGTGTAGAT ATAAGTACG AGcGACTCAA AACACCGTTT	480
TGAGGTTGTG GATAGAACTG ACGAGcGACT CAAAACACCG TTTTGAGGTT GTGGATAGAA	540
CTGACGAAGT CGcTCAAAAC ACCGTTTTGA GGTGTGGAT AGAACTGACG AatgctCAAA	600
ACACCGTTTT GAGGTTGTGG ATAGAACTGA CGAAGCgaac ATATATACAG CAAGGCGACG	660
CTGACGTGGT TTGAAGAGTA TTACTGTCTA TATTTTTGGT AAAAATCAAC TTTTACTTGG	720
ATGAAGGTTT TTTTTTTT	738

(2) INFORMATION FOR SEQ ID NO: 380:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 695 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 380:

CCGTCTTATC AAAGAGGTTA ACAAAGGCAC CAAATTTCTC GATACGAACG ACTTTAGCAC	60
GGTAAACTTC ATCCACTTTG GCTTCACGAA CCAAACCAGC AATAATTTCT TTGGCACGGT	120
TAATAGCATC TTGGTCACTA GAGTAGATAG ACACATTTCC TTCTTCGTCT ATATCAATCT	180
TAACACCTGT TTCAGCGATA ATCTTGTCGA TGGTTTCTCC ACCCTTACCG ATGACAATCT	240
TAATCTTGTC CACATCAATC TTGATCGTAT CAATTTTCGG AGCAGTTGGA GCCAATTCTG	300
GACGAACCTC TCGAATGGTT GCTTCAATGA CATCAAGGAT TTCAAAACGC GCTTTCTTGG	360
CTTGAGCAAG AGCCTCCGTC AAGATTTCTG CAGTAATCCC TTGAATCTTG ATATCCATTT	420
GAAGGGCTGT AATCCCATCA CGAGTACCTG CAACCTTGAA GTCCATATCT CCAAAGTGAT	480
CTTCCAAACC TTGGATATCT GTCAATACTG TGTAGTTATT TCCATCTGAG ATAAGCCCCA	540
TAGCAATACC AGCTACTGGC GCCTTGATTG GCACACCACC AGCCATAAGG GCAAGAGTTC	600

1392

CCGCACAGAT AGAAGCTTGA GATGAAGAAC CGTTTGATTC CAAAACCTTCT GCTACTAGAC	660
GGATAGCGTA GGGGAATTCT TCCAAGCTTG GCAGG	695

(2) INFORMATION FOR SEQ ID NO: 381:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 691 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 381:

GACATCTTAT CTAAATACAT GCTAATATAT TTAGATACAA ACATTCCAAC TTGATAATTT	60
TCACTCATCT TTCATCATTC CTTATACAAC TATGCAGTAT AAATAGAATA GTTTTCTCAT	120
CAGAATGAGA CTATTTTAAT ATTAGATCCC CAATTATPCA CCCCAAATCT AAAAACCATC	180
CAGAATCCTT GCCTTAGCTT AGATCCTGGA TGGTTTCTTT TTTCACCCAA TGGGTGTTTT	240
TTACTAGACA AAAAAGAGTT TCCCCTTTAT GGTATAAGTG TAGAAAAAAA CACAAAAAGA	300
AAGGAAATC ACATGAACAG TTTACCAAT CATCACTTCC AAAACAAGTC TTTTACCAC	360
CTATCTTTCG ATGGAGGTCA TTTAACCAG TATGGTGGTC TTATCTTTTT TCAGGAACCTT	420
TTTTCCAGT TGAACTAAA AGAGCGGATT TCTAAGTATT TAGTAACGAA TGACCAACGC	480
CGCTACTGTC GTTATTCGGA TTCAGATATC CTTGTCCAGT TCCTCTTTCA ACTGTTAACA	540
GGTTATGGAA CGGACTATGC TTGTAAAGAA TTGTCAGCTG ATGCCTACTT TCCAAAATTG	600
TTGGAAGGAG GGCAGCTTGc TTCACAGCCA ACCTTATCCC GwTTTCTTTC CAGAACTGAC	660
GAGGAAACAG TCCATAGTTT GCGATGCCTC A	691

(2) INFORMATION FOR SEQ ID NO: 382:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 750 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: double
  - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 382:

ATCTCTCTGC GTAATGGTCC TCAGATAACT CTGATGATGT GTGGCGATAT AGAACTGAGC	60
CAAGTTATGC CTAAAGGGCC TTAGGAATAG GAGCTTTCAC AAGCTTATCC AGATGATTAT	120
CTTTTACTCG TTATGGACAA TGCTATATGG CATAAATCAA GTACCTTAAA GATTCCGACT	180
AATATTGGCT TTGCATTTAT TCCTCCATAC ACACCAGAGA TGAACCCCAT TGAACAAGTG	240



1393

TGGAAAGAGA TTCGTAAACG TGGATTTAAG AATAAAGCCT TTCGAACCTT GGAAGATGTC	300
ATACAAGGAC TGGAGAAGGA GGTGATAAAG TCCATCGTTA ATCGGAGACG GACTAGAATG	360
CTTTTTGAAA ACAGATGAGT ATAAAAAGAA AGTCCTCATT TCAATAGAAA TCACGACTTT	420
CTGATGAATT TATAGTAAAA TGAAATAAGA ACAGGATAGT CAAATCGATT TCTAACAATG	480
TTTTAGAAGC AGAGGTGTAC TATTCTAGTT TAAATCCACT ATATTTGGGG AGTGATAGAA	540
AAGCCCTTCA TCAGCCAATC TACTTGTTCA GGTGCGAGAG CTTTGACATC CTTTCTGTGA	600
CTGGACCAAG TCAGTTTTCC GTTCTCAAAG CGTTTATATA ATATCCAAAA TCCTTGACCA	660
TCCCAGTAAA GAACTTTAAA GCGGTCTTTA CGTCCACCAC AAAAGAGAAA GACTTGATCG	720
GAGAAAGGAT CCAATTCAAA GTGGGTTTGG	750

(2) INFORMATION FOR SEQ ID NO: 383:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 738 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 383:

TCAAATTCCTT CGTGGTCCGC ATATCTnTCT TCGTACACGG CAGTCACTTG GTCTTTCAC	60
ACTCGAGTCG CAGCTTCACG GGCCAATTC TCTTCTACTT GAACTGCCTT TTGGAGGTCA	120
CTGTTGTAGG CTGCAATGAT TTCAGCTTGC AATTCAGCAT CCACGTGAAG CAATTCCACT	180
TCTGCTTTT CTTTACCGAC AGCAGCAACG ATTTCTTCTT GGAAGGCAAT CAATTCTTTG	240
ACAGCTTCGT GCCCTTTAAG GAGCGCTTCC AACATGATTT CTTCTGACAA TTCTTTGGCA	300
CCAGACTCTA CCATGTTGAT AGCGTGCTTG GTTCCAGCTA CTGTCAATTC AAGAAGAGAT	360
TGCTCTGCTT GTTCTTGACT TGGGTTGATG ATGATTGGC CATCTACATA TCCCCTTGT	420
ACCCAGCAA TTGGTCCGTC AAATGGAATA TCTGAAATAG ACAGTGCCAA AGATGAACCA	480
AACATAGCAG CCATTGGTGC AGATGCATTT TCATCATAAG AAAGCACTGT ATTGATGACT	540
TGGACTTCAT TACGGAAACC TTCCGAAAC ATAGGACGAA TCGGACGGTC AATCAAACGC	600
GCTGTCAAGG TCGCATCTGT TGAAGGACGT CCTTCAGTT TCATAAAGCC ACCAGGAAAC	660
TTCCAGCCG CATACATTTT TTCTTCGTAG TTGACTTGA GTGGGAAGAA ATCCTCAGTT	720
GCCATTTTCT GGGGATCC	738

(2) INFORMATION FOR SEQ ID NO: 384:

1394

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 657 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 384:

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CCCCCTATTT ACCGTGGACT AAAGTTGTAC AAGAAAAGTG CAAATAAGAA ATCTCCAGAT      60
TAGGAACTAT ATATGAGTTC TCTAGTCTGG AGATTTTTC AATAGACTTCG TTATTGGGCG      120
GTTACTTTTCG AAACTTTGAA AACTTCAAAA AACGGATTTT TATCGCTTTC AAATCTTTT      180
GGGGTCAAAC TCAGTAACTT ATTCGCCTTG TAGACTTCAT GACGCTCAGG GTATACTTTC      240
AAGGTCCCAA ATAGCCAAGA ATCGTCAGCG ATATTATCTG AATCATCTCC TTCTTGTTC      300
CCTTTAGTTC GCCTGAGGAC AGCCTTGACA CGCGCCAGAA TTCTCTAGGG CTAAGAGGCT      360
TGGTCAGGTA GTCATCAGCC CCTAATTCCA AGGCCAAAAC CTTATCAAAT TCATCACTTT      420
TCGCAGAAAC CATCATAATT GGAGTTTGA CGCCTTGGC TCTCAGCCGC TTACAAACTT      480
CCATGCCATC TAATTGTGGT AACATGATAT CAAGCAAGAT AAAATCAAAG GGTCTCTGTT      540
CTGCCAAAGC TAAGGCCTTC CGTCCATTG TCACCAATTG AGTAGAAAAG CCTTCCTTAC      600
TTAAATGGTA GTCAAGCAAT TTCAGAATGT GTTCTTCATC ATCCACTAAT AAGACTT      657

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(2) INFORMATION FOR SEQ ID NO: 385:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 586 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 385:

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CCGCATCAGC ATCAACGAGT GCATCGGCTT CACGTCAACC AGTGCATCAG TCTCAGCAAG      60
CACCAGTGCG TCGGCTTCAG CATCAACGAG TGCCTCAGCC TCAGCAAGTA TCTCAGCGTC      120
TGAATCGGCA TCAACGAGTG CGTCAGCTCA GCAAGTACTA GTGCATCGGC TTCAGCAAGC      180
ACCAAGTGGT CGGCTTCAGC ATCAACGAGT GCCTCAGCCT CAGCAAGTAT CTCAGCGTCT      240
GAATCGGCAT CAACGAGTGC GTCACCTCAG CAAGTACTAG TGCATCAGCA TCAGCATCAA      300
CGAGTGCAAT GGCTTCAGCA AGTACCAGCG CCTCAGCTTC AGCAAGCACC AGTGCCTCAC      360
CTCAGCAAGT ACCAGCGCCT CAGCCTCAGC AAGCACCAGT GCCTCAGCTT CAGCAAGTAC      420
CAGTGCGTCA CCTCAGCATC GACAAGTGCG TCGGCTTCAG CAAGTACCTC AGCGTCTGAA      480

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1395

TCAGCATCAA CGAGTGGCTC AGCTTCAGCA TCAACCAGTG CCTCAGCCTC AGCAAGTATC 540  
 AGTGGCTCAG CTTTCAGCATC AACGAGTGGC TCAGCTGCAG CAAGTA 586

## (2) INFORMATION FOR SEQ ID NO: 386:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 451 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 386:

CGTCGGCTTC AGCATCAACG AGTGCATCAG CTTTCAGCATC AACAAAGTGCT TCAGCTTCAG 60  
 CAAGTACCAG TGGCTCGGCT TCAGCATCAA CGAGTGCTTC AGTCTCAGCG TCAACCAGTG 120  
 CCTCTGAATC CGCATCAACA AGTGCCTCGG CTTTCAGCAAG CACCAGTGCT TCGGCTTCAG 180  
 CGTCAACGAG TGGCTCTGAG TCAGCATCAA CGAGTGGCTC ACCTCAGCAA GCACATCAGC 240  
 TTCTGAATCT GCATCAACCA GTGCGTCAGC TTCCGCATCA ACAAGCGCCT CGGCCTCAGC 300  
 AAGTACAAGT GCTTCAGCCT CAGCATCAAC CAGTGCATCA GCTTCAGCCT CAACAAGTGC 360  
 TTCAGCCTCA GCGTCAACCA GTGCCTCGGC TTCAGCAAGT ACCAGTGGCT CAGTTCAGCA 420  
 AGCACAAGTG CGTCAATTTA GCATCAACCA G 451

## (2) INFORMATION FOR SEQ ID NO: 387:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 425 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 387:

TCTCAGCAAG CACCATTGCG TCGGCTTCAT CAAGCACCAG CGCGTTTGAA TCCGCATCAA 60  
 CCAGTGCTTC AGCTTCAGCC AAGTTACCTC AGCATCTGAA TCAGCATCAA CAAGTGCATC 120  
 GGCTTCAGCA AGCACAAGTG CTTTCAGCTCA GCAAGTATCT CAGCGTCTGA ATCGGCATCA 180  
 ACGAGTGGCT CCGCTTCAGC AAGTACTAGC GCCTCAGCAT CAGCGTCAAC AAGTGCTTCG 240  
 GCTTCAGCGT CAACGAGTGC GTCTGAGTCA GCATCAACGA GTACGTCAGC CTCAGCAAGC 300  
 ACATCAGCTT CTGAATCTGC ATCAACCAGT GCGTCAGCCT CAGCATCGAC AAGCGCCTCA 360  
 GCTTCAGCAA GTACCAGTGC GTCAGCCTCA GCAAGTACCA GTGCTTCAGC CTCAGCGTCG 420

1396

ACAAG

425

## (2) INFORMATION FOR SEQ ID NO: 388:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 572 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 388:

AGAGGATCCC CGGATCCTCA GTCGCTGAGA TAACTCCTTT GGGCTTGTTT ATCATGTAGT	60
AGACAAATC TTCATACTCC AACACTTGCC CATTTTATGC GAATCTCATC TATTTTCTCT	120
TTTTTTTGCA ATTTAGCTGA TTTTCTTTT TTACCATTTA CAGTCACGCG CCCAGCCTTG	180
AGCAAGTTT TGACCTCAGT CCGACTTCCC ACCGCACAGG CAACTAAAAA TTTATCTAAT	240
CTCATAGAAC TATTATATCA TATCAAAAGG AGGCTAGTAC AATGACCAAC CTCCTTTTCG	300
TTTCATACTC TTCAAAAATC TCTTCAAACC GCGTCAACGT CGCCTTGCCG TATATATGTT	360
ACTGACTTCG TCAGTTCTAT CTGCAACCTC AAAACAGTGT TTTGAGCTGA CTTCGTCAGT	420
TCTATCTGCA ACCTCAAAGC AGTGCTTTGA GCATCCTGCG GCTAGTTTCC KAGTKTGCTC	480
TTTGATTTC ATTGAGTATC AGATTAGGA AATTAAGTTC CTCGKCTCCA AAAAAGAGCT	540
AAAACAATCA AGGCTCCTAA AATCGCTGGG AT	572

## (2) INFORMATION FOR SEQ ID NO: 389:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 505 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: double  
(D) TOPOLOGY: linear

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 389:

CAACAAGTGC CTCGGCTTCA GCATGCACAA GTGCTTCAGC TTCAGCATGT ACCTGAGCGT	60
CTGAATCAGC ATCAACGTGT GCGTCCGCTT CAGCATGTAC TGCTGCCTCA GCATCAGCGT	120
CAACAAGTGC TTCGGCTTCA GCGTCAACGA GTGCGTCTGA GTCAGCATCA ACGAGTACGT	180
CAGCCTCAGC AAGCACATCA GCTTCTGAAT CTGCATCAAC CAGTGCCTCA GCCTCAGCAT	240
CGACAAGCGC CTCAGCTTCA GCAAGTACCA GTGCGTCAGC CTCAGCAAGT ACCAGTGCTT	300
CAGCCTCAGC GTCGACAAGT GCGTCGGCCT CAACCAAGTGC ATCTGAATCG GCATCAACCA	360
GTGCGTCAGC CTCAGCAAGT ACTAGCGCCT CAGCCTCAGC ATCAACGAGT GCGTCCGCTT	420

1397

CAGCAAGTAC TAGTGCATCA GCATCAGCAT CAACGAGTGC ATCGGCTTCA GCAAGTACCA 480  
 GCGCCTCAGC TTCAGCAAGC ACCGG 505

(2) INFORMATION FOR SEQ ID NO: 390:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 447 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 390:

GCTAAGACTA CCTCATTAGG GGCATAGGCT GCTAAAATAA CTGCAGCTGT GGTTAATGAC 60  
 AATACTGTAC TTTTTCATC TTTAATTCCT TACATATTTA TATAACTTCC AATAGATAAT 120  
 AAACTTTAAC TTGCTAGCC TTGTTATAA AAAGTTTAC TAAGTATTAT CTAGGAAATA 180  
 GAGTAGTACA TTTATATATA ATTGTTATCT CTCTATAAAA ACAGTATATC ATTTAAAAAA 240  
 ATTTAAGTCA AAAAAATTAA CATTAGTTAA TTTATTTTTT AGCACACATT AAAAAATAAG 300  
 ATTAGTACTC AATGAAAATC AAAGAGCAAA CTAGGAAACT AGCCGCAGAT TGCTCAAAAC 360  
 AGTGTTTGA GGTGTAGAT GGAATGACGT AGTCAGCTCA AAACACTGTT TTGAAGTTGT 420  
 GGATAGAACT GACGAAGTCG GTACCGA 447

(2) INFORMATION FOR SEQ ID NO: 391:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 572 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: double  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 391:

AGCACTTGTC GTTGAATTCT ACAACAAAAT GTTGTAAATAT TTTATTGAAT AAGATAGGCC 60  
 TTGATATTAA GCACTTTGGG ACGTTCCTCC TTAGTGCTTT TTTGATTCT CTTAGTATCC 120  
 AGCTATAATC GTTGAGACAT AACTAGACCG ATATAGTCCA AAGTGATATA GTAAAATGAA 180  
 CCAAAAATAG TACACAATGT GGTATAATCC TTTTATGGCA TATTCAATAG ATTTTCGTAA 240  
 AAAAGTTCTC TCTTATTGTG AGCGAACAGG TAGTATAACA GAAGCATCAC ACGTTTTCCT 300  
 AATCTCACGT AATACCATTT ATGGCTGGTT AAAGCTAAAA GAGAAAACAG GAGAGCTAAA 360  
 CCACCAAGTA TAGTGATTG AATCTATAAC AGTACACCTT GGCTGCTAAA ATATTTCTAT 420

1398

AAATTAATTT GACTTTCCTG ATAGAGATGT TCACATCTTA TTTCAAACTA CTATATAAGT	480
TCTATAATCT CTTTATAAGA TTTGCCCATC AGACAAAATA GAACGATTG AAGGCGTTTA	540
TGATATTTAG CTGTACGAGA GTCTTTTAAA AG	572

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MISSING UPON TIME OF PUBLICATION

**DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person approved by the applicant in the individual case.

**SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PUT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant, any request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by the applicant in the individual case.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the International publication of the application.

**NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapse, the microorganism shall be made available as provided in Rule 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever two dates occurs earlier.



**SINGAPORE**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for international publication of the application.

**NORWAY**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegians Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Registration), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**ICELAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Icelandic Patent Office), or has been finally decided upon by the Icelandic Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected in the art.

**What Is Claimed Is:**

- 25           1. Computer readable medium having recorded thereon the nucleotide sequence depicted in SEQ ID NOS:1-391, a representative fragment thereof or a nucleotide sequence at least 95% identical to a nucleotide sequence depicted in SEQ ID NOS:1-391.
- 30           2. Computer readable medium having recorded thereon any one of the fragments of SEQ ID NOS:1-391 depicted in Tables 2 and 3 or a degenerate variant thereof.
- 35           3. The computer readable medium of claim 1, wherein said medium is selected from the group consisting of a floppy disc, a hard disc, random access memory (RAM), read only memory (ROM), and CD-ROM.
- 40           4. The computer readable medium of claim 3, wherein said medium is selected from the group consisting of a floppy disc, a hard disc, random access memory (RAM), read only memory (ROM), and CD-ROM.
5. A computer-based system for identifying fragments of the *Streptococcus pneumoniae* genome of commercial importance comprising the following elements:
- 45           a) a data storage means comprising the nucleotide sequence of SEQ ID NOS:1-391, a representative fragment thereof, or a nucleotide sequence at least 95% identical to a nucleotide sequence of SEQ ID NOS:1-391;
- b) search means for comparing a target sequence to the nucleotide sequence of the data storage means of step (a) to identify homologous sequence(s), and
- c) retrieval means for obtaining said homologous sequence(s) of step (b).
- 50           6. A method for identifying commercially important nucleic acid fragments of the *Streptococcus pneumoniae* genome comprising the step of comparing a database comprising the nucleotide sequences depicted in SEQ ID NOS:1-391, a representative fragment thereof, or a nucleotide sequence at least 95% identical to a nucleotide sequence of SEQ ID NOS:1-391 with a target sequence to obtain a
- 55           nucleic acid molecule comprised of a complementary nucleotide sequence to said target sequence, wherein said target sequence is not randomly selected.

60 7. A method for identifying an expression modulating fragment of  
*Streptococcus pneumoniae* genome comprising the step of comparing a database  
comprising the nucleotide sequences depicted in SEQ ID NOS:1-391, a  
representative fragment thereof, or a nucleotide sequence at least 95% identical to  
the nucleotide sequence of SEQ ID NOS:1-391 with a target sequence to obtain a  
nucleic acid molecule comprised of a complementary nucleotide sequence to said  
65 target sequence, wherein said target sequence comprises sequences known to  
regulate gene expression.

8. An isolated protein-encoding nucleic acid fragment of the *Streptococcus*  
*pneumoniae* genome, wherein said fragment consists of the nucleotide sequence of  
70 any one of the fragments of SEQ ID NOS:1-391 depicted in Tables 2 and 3, or a  
degenerate variant thereof.

9. A vector comprising any one of the fragments of the *Streptococcus*  
*pneumoniae* genome SEQ ID NOS:1-391 depicted in Tables 2 and 3 or a  
75 degenerate variant thereof.

10. An isolated fragment of the *Streptococcus pneumoniae* genome,  
wherein said fragment modulates the expression of an operably linked open reading  
frame, wherein said fragment consists of the nucleotide sequence from about 10 to  
80 200 bases in length which is 5' to any one of the open reading frames depicted in  
Tables 2 and 3 or a degenerate variant thereof.

11. A vector comprising any one of the fragments of the *Streptococcus*  
*pneumoniae* genome of claim 8.  
85

12. An organism which has been altered to contain any one of the  
fragments of the *Streptococcus pneumoniae* genome of claim 8.

13. An organism which has been altered to contain any one of the  
90 fragments of the *Streptococcus pneumoniae* genome of claim 10.

14. A method for regulating the expression of a nucleic acid molecule comprising the step of covalently attaching to said nucleic acid molecule a nucleic acid molecule consisting of the nucleotide sequence from about 10 to 100 bases 5' to any one of the fragments of the *Streptococcus pneumoniae* genome depicted in SEQ ID NOS:1-391 and Tables 2 and 3 or a degenerate variant thereof.

15. An isolated nucleic acid molecule encoding a homolog of any of the fragments of the *Streptococcus pneumoniae* genome of SEQ ID NOS:1-391 and Tables 2 and 3, wherein said nucleic acid molecule is produced by a process comprising steps of:

a) screening a genomic DNA library using as a probe a target sequence defined by any of SEQ ID NOS:1-391 and Tables 2 and 3, including fragments thereof;

b) identifying members of said library which contain sequences that hybridize to said target sequence; and

c) isolating the nucleic acid molecules from said members identified in step (b).

16. An isolated DNA molecule encoding a homolog of any one of the fragments of the *Streptococcus pneumoniae* genome of SEQ ID NOS:1-391 and Tables 2 and 3, wherein said nucleic acid molecule is produced a process comprising steps of:

a) isolating mRNA, DNA, or cDNA produced from an organism;

b) amplifying nucleic acid molecules whose nucleotide sequence is homologous to amplification primers derived from said fragment of said *Streptococcus pneumoniae* genome to prime said amplification;

c) isolating said amplified sequences produced in step (b).

17. An isolated polypeptide encoded by any of the fragments of the *Streptococcus pneumoniae* genome of SEQ ID NOS:1-391 and depicted in Table 2 and 3 or by a degenerate variant of said fragments.

18. An isolated polynucleotide molecule encoding any one of the polypeptides of claim 17.

19. An antibody which selectively binds to any one of the polypeptides of claim 17.

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20. A method for producing a polypeptide in a host cell comprising the steps of:

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a) incubating a host containing a heterologous nucleic acid molecule whose nucleotide sequence consists of any one of the fragments of the *Streptococcus pneumoniae* genome of SEQ ID NOS:1-391 and depicted in Tables 2 and 3, under conditions where said heterologous nucleic acid molecule is expressed to produce said protein, and

b) isolating said protein.

Figure 1

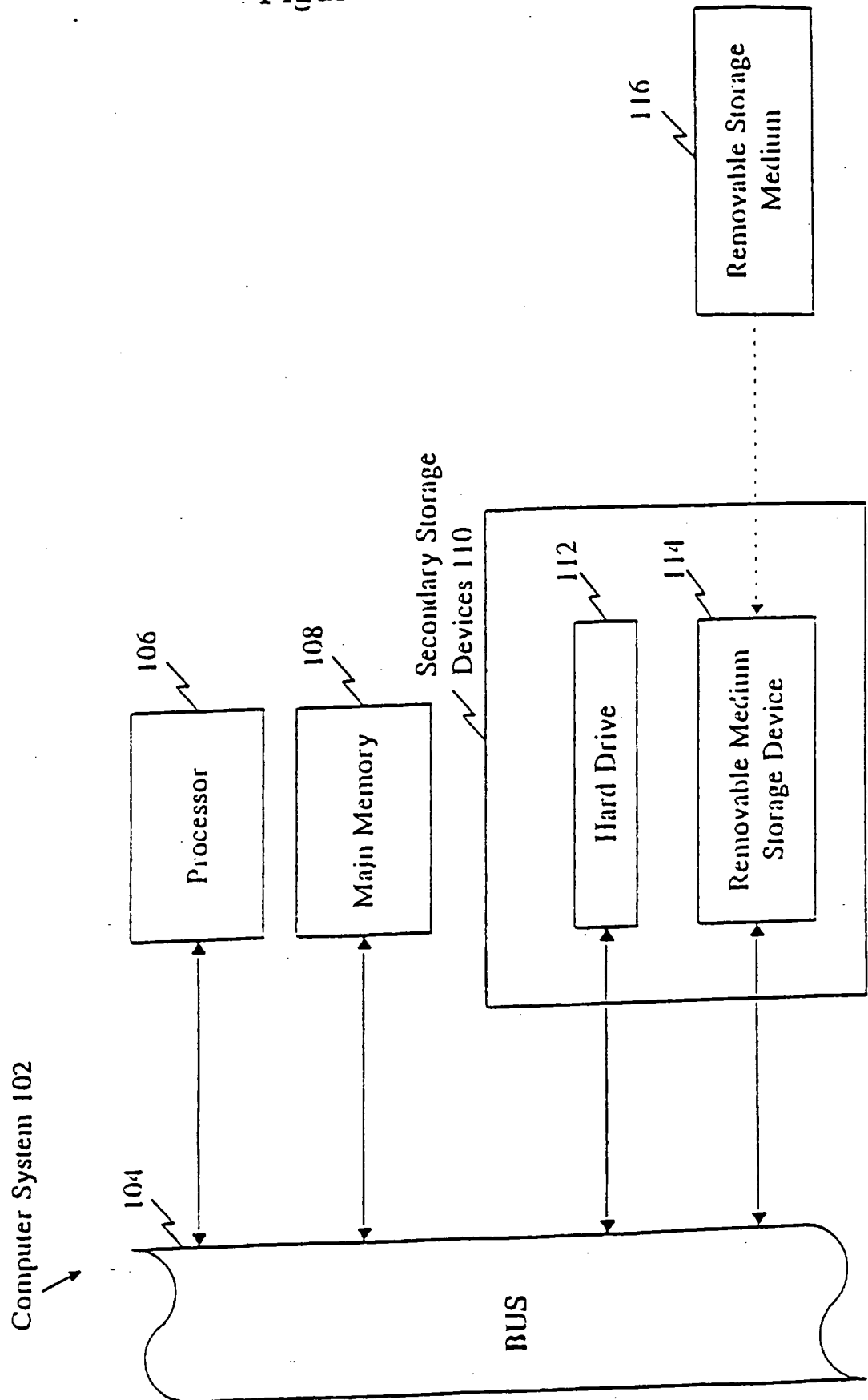
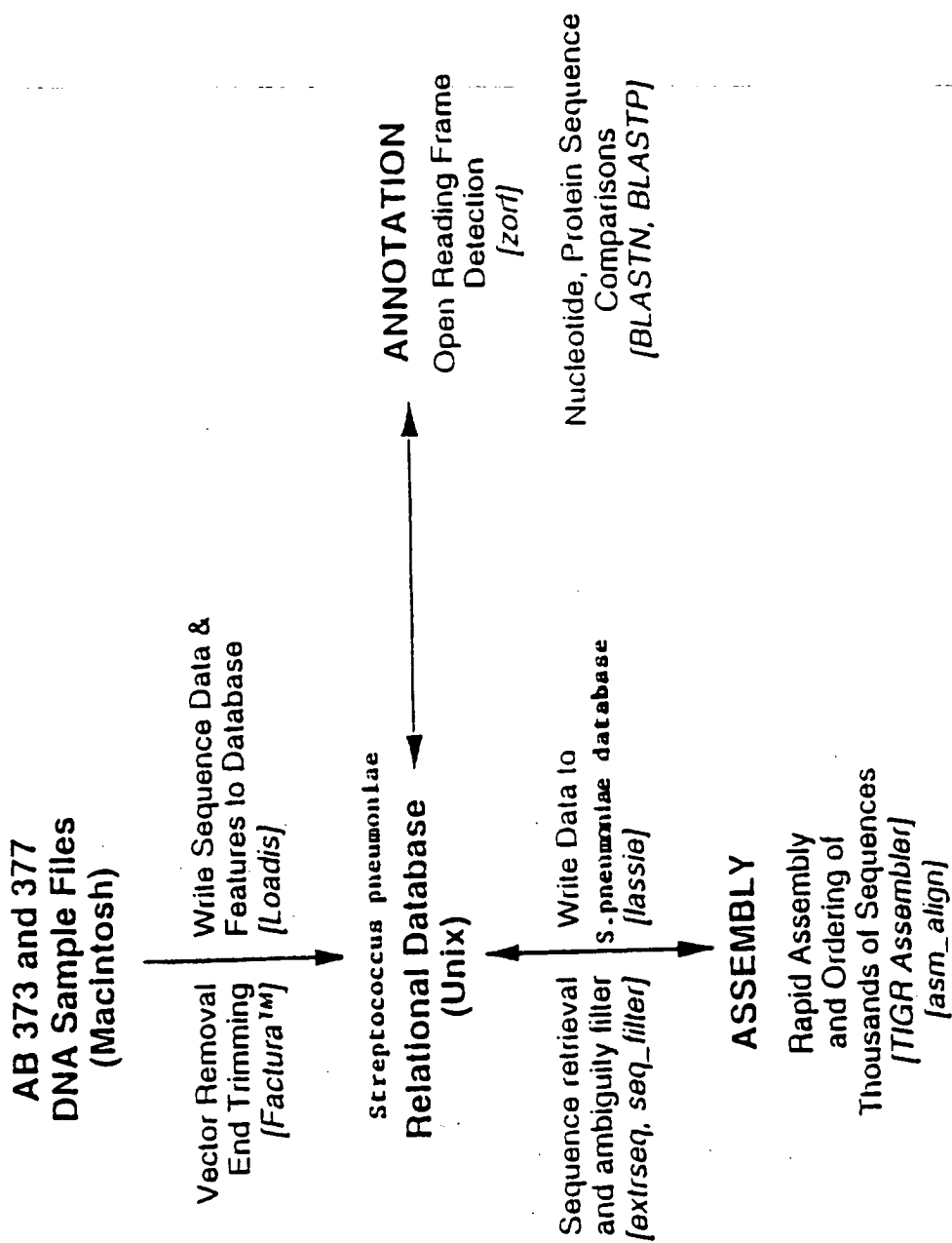


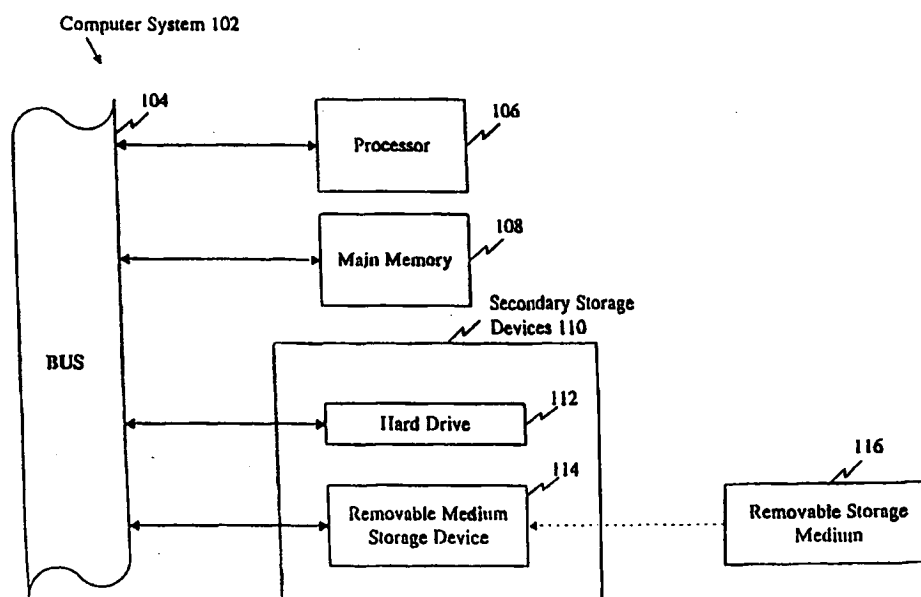
Figure 2





## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>6</sup> : <b>C12N 15/31, C07K 14/315, 16/12, C12Q 1/68</b>		(11) International Publication Number: <b>WO 98/18931</b>
A3		(43) International Publication Date: 7 May 1998 (07.05.98)
(21) International Application Number: PCT/US97/19588		(74) Agents: BROOKES, A., Anders et al.; Human Genome Sciences, Inc., 9410 Key West Avenue, Rockville, MD 20850 (US).
(22) International Filing Date: 30 October 1997 (30.10.97)		
(30) Priority Data: 60/029,960 31 October 1996 (31.10.96) US		
(71) Applicant (for all designated States except US): HUMAN GENOME SCIENCES, INC. [US/US]; 9410 Key West Avenue, Rockville, MD 20850 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).
(72) Inventors; and		
(75) Inventors/Applicants (for US only): KUNSCH, Charles, A. [US/US]; 2398B Dunwoody Crossing, Atlanta, GA 30338 (US). CHOI, Gil, H. [KR/US]; 11429 Potomac Oaks Drive, Rockville, MD 20850 (US). DILLON, Patrick, J. [US/US]; 1055 Snipe Court, Carlsbad, CA 92009 (US). ROSEN, Craig, A. [US/US]; 22400 Rolling Hill Road, Laytonsville, MD 20882 (US). BARASH, Steven, C. [US/US]; 582 College Parkway #303, Rockville, MD 20850 (US). FANNON, Michael [US/US]; 13501 Rippling Brook Drive, Silver Spring, MD 20850 (US). DOUGHERTY, Brian, A. [US/US]; 708 Meadow Field Court, Mount Airy, MD 21771 (US).		
		Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.
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(54) Title: *STREPTOCOCCUS PNEUMONIAE* POLYNUCLEOTIDES AND SEQUENCES

## (57) Abstract

The present invention provides polynucleotide sequences of the genome of *Streptococcus pneumoniae*, polypeptide sequences encoded by the polynucleotide sequences, corresponding polynucleotides and polypeptides, vectors and hosts comprising the polynucleotides, and assays and other uses thereof. The present invention further provides polynucleotide and polypeptide sequence information stored on computer readable media, and computer-based systems and methods which facilitate its use.



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## INTERNATIONAL SEARCH REPORT

In. ational Application No

PCT/US 97/19588

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C12N15/31 C07K14/315 C07K16/12 C12Q1/68

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 C12N C07K C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 96 33276 A (HUMAN GENOME SCIENCES INC ;UNIV JOHNS HOPKINS (US)) 24 October 1996 see claims 1-7	1-7
A	ALTSCHUL S F ET AL: "BASIL LOCAL ALIGNMENT SEARCH TOOL" JOURNAL OF MOLECULAR BIOLOGY, vol. 215, 1990, pages 403-410, XP000604562 cited in the application see the whole document	1-7



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents :

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- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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Date of the actual completion of the international search

27 March 1998

Date of mailing of the international search report

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 97/19588

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	W.R. PEARSON AND D.J. LIPMAN: "Improved tools for biological sequence comparison" PROC. NATL. ACAD. SCI., vol. 85, April 1988, NATL. ACAD. SCI., WASHINGTON, DC, US;, pages 2444-2448, XP002060460 cited in the application see the whole document ---	1-7
A	WO 95 06732 A (UNIV ROCKEFELLER ;MASURE H ROBERT (US); PEARCE BARBARA J (US); TUO) 9 March 1995 see the whole document ---	1-7
A	WO 95 31548 A (UAB RESEARCH FOUNDATION ;YOTHER JANET (US); DILLARD JOSEPH P (US)) 23 November 1995 see the whole document ---	1-7
A	WO 95 14712 A (RES CORP TECHNOLOGIES INC) 1 June 1995 see the whole document ---	1-7
A	WO 96 05859 A (AMERICAN CYANAMID CO) 29 February 1996 see the whole document ---	1-7
A	WO 93 10238 A (US HEALTH) 27 May 1993 see the whole document ---	1-7
A	EP 0 687 688 A (UNIV OVIEDO ;UNIV LEICESTER (GB)) 20 December 1995 see the whole document ---	1-7
A	EP 0 622 081 A (UAB RESEARCH FOUNDATION) 2 November 1994 see the whole document -----	1-7

# INTERNATIONAL SEARCH REPORT

...ernational application No.

PCT/US 97/ 19588

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:  
Remark: Although claims 1-4 could be, at least partially be considered as a mere presentation of information Rule 39.1(v), and claims 5-7 at least partially as a computer program, Rule 39.1(vi)PCT, the search has been carried out as far as possible in our systematic documentation.
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see continuation-sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-7

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

## 1. Claims: 1-7

Computer readable medium having recorded thereon the nucleotide sequence depicted in SEQ ID nos. 1-391, a representative fragment thereof or a nucleotide sequence at least 95% identical to a nucleotide sequence depicted in SEQ ID nos. 1-391; a computer-based system for identifying fragments of the *Streptococcus pneumoniae* genome of commercial importance comprising: a) a data storage means comprising said nucleotide sequence(s); b) search means for comparing a target sequence to the nucleotide sequence of the data storage means of step (a) to identify homologous sequence(s), and c) retrieval means for obtaining said homologous sequence(s) of step (b); a method for identifying commercially important nucleic acid fragments of the *Streptococcus pneumoniae* genome comprising the step of comparing a database comprising said nucleotide sequence(s) with a target sequence to obtain a nucleic acid molecule comprised of a complementary nucleotide sequence to said target sequence, wherein said target sequence is not randomly selected; a method for identifying an expression modulating fragments of the *Streptococcus pneumoniae* genome comprising the step of comparing a database comprising said nucleotide sequence(s) with a target sequence to obtain a nucleic acid molecule comprised of a complementary nucleotide sequence to said target sequence, wherein said target sequence comprises sequences known to regulate gene expression;

## 2. Claims: (8-20) partially

An isolated protein-encoded nucleic acid fragment of the *Streptococcus pneumoniae* genome, wherein said fragment consists of the nucleotide sequence of the fragment of SEQ ID no.1 depicted in Tables 2 and 3, or a degenerate variant thereof; a vector comprising the fragment of the *Streptococcus pneumoniae* genome SEQ ID no.1; an isolated fragment of the *Streptococcus pneumoniae* genome, wherein said fragment modulates the expression of an operably linked open reading frame, wherein said fragment consists of the nucleotide sequence from about 10 to 200 bases in length which is 5' to any one of the open reading frame of SEQ ID no.1 depicted in Tables 2 and 3 or a degenerate variant thereof; a method for regulating the expression of a nucleic acid molecule comprising the step of covalently attaching to said nucleic acid molecule a nucleic acid molecule consisting of the nucleotide sequence from about 10 to 100 bases 5' to any one of the open reading frame of SEQ ID no.1 and Tables 2 and 3 or a degenerate variant thereof; an isolated nucleic acid molecule encoding a homolog of SEQ ID no.1; an isolated polypeptide encoded by SEQ ID no.1 and depicted in Table 2 and 3; an antibody which selectively binds to any one of said polypeptides, a method for producing a polypeptide in a host cell comprising a) incubating a host containing a heterologous nucleic acid

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

molecule whose nucleotide sequence consists of SEQ ID no.1 and depicted in Table 2 and 3, under conditions where said heterologous nucleic acid molecule is expressed to produce said protein, and b) isolating said protein;

3-392. Claims:(8-20) partially

Idem as subject 2 but limited to each of the sequences of SEQ ID no. 2 to 391;

For the sake of conciseness, the second subject matter is explicitly defined, the other subject matters are defined by analogy hereto.

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No.

PCT/US 97/19588

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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EP 0622081 A	02-11-94	AU 682018 B AU 5769694 A CA 2116261 A FI 941695 A JP 7126291 A NO 941420 A US 5679768 A ZA 9401584 A	18-09-97 27-10-94 21-10-94 21-10-94 16-05-95 21-10-94 21-10-97 12-10-94